

REVISED HABITAT CONSERVATION PLAN

In Support of the
Amended Incidental Take Permit PRT-830417
Under Section 10(a)(1)(B) of the Endangered Species Act

For Granite Rock Company's
Current and Future Sand Mining Operations at the
Quail Hollow Quarry, Santa Cruz County, California
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EXECUTIVE ABSTRACT AND INTRODUCTION

Granite Rock Company has applied to the U. S. Fish and Wildlife Service (Service) for an amendment to its existing Permit No. PRT-830417, pursuant to section 10(a)(1)(B) of the Endangered Species Act of 1973 (16 U.S.C. § 1531-1544, 87 Stat. 884), as amended (ESA), for the incidental take of the following "Plan Species", which are federally listed as endangered: Mount Hermon June beetle (*Polyphylla barbata*) and Zayante band-winged grasshopper (*Trimerotropis infantilis*). The proposed incidental take would occur within a 102-acre area of the 220-acre Quail Hollow Quarry project site located in Santa Cruz County, California (see Map 1, Regional Location). The project site also supports state listed and federally listed endangered plant species: the Ben Lomond wallflower (*Erysimum teretifolium*) (State and Federal) and Ben Lomond spineflower (*Chorizanthe pungens* var. *hartwegiana*) (Federal), also considered Plan Species. To meet the requirements of law for a section 10(a)(1)(B) permit, Granite Rock Company proposes to implement this revised Habitat Conservation Plan (HCP) to provide measures for minimizing and mitigating adverse effects on the Plan Species covered in the HCP. Granite Rock Company is requesting that the amendment provide that its existing Incidental Take Permit No. PRT-830417 is issued for a period of 100 years to correspond with the potential life of mining activities and other activities that may result in take (e.g. enhancement, reclamation and restoration) within the Current and Future Mining Areas.

Granite Rock Company has an existing mining permit from the County of Santa Cruz (County) to mine in areas A, B, and C of the Current Mining Area. Granite Rock Company is currently mining in areas B and C where Plan Species occur. Because mining in areas B and C would result in take of Plan Species, the Service issued Incidental Take Permit No. PRT-830417, for a term of 3 years, in August 1997, for mining in those areas, and Granite Rock Company entered into a Memorandum of Understanding pursuant to the California Endangered Species Act (CESA MOU) with the California Department of Fish and Game (CDFG). On 10 June 1998, the County, acting as lead agency under the California Environmental Quality Act (CEQA), approved Granite Rock Company's application to expand mining into a new mining area, referred to as the Future Mining Area.

Because mining in the Future Mining Area would also result in take of Plan Species, a revised HCP and attached Implementing Agreement (IA) covering mining in both the Current and Future Mining Areas was prepared. The current revised HCP and attached IA have been prepared to amend the existing incidental take permit and to support Granite Rock Company's request for an incidental take permit from CDFG pursuant to Section 2081 of CESA (2081 Permit). An amended permit from the Service, including an amended Environmental Assessment (EA), and a 2081 Permit from CDFG is required prior to any mining in the Future Mining Area. There has also been the required public review of the application for the permit amendment. This revised HCP and attached IA for the Quail Hollow Quarry supersede the July 1997 HCP and the August 1997 IA. Throughout the remainder of this document, the terms Habitat Conservation Plan or HCP and Implementing Agreement or IA refer to this revised HCP and the attached IA, unless otherwise noted.

This HCP and attached IA delineate the responsibilities of Granite Rock Company, the County, the Service, and CDFG. These documents describe measures that will be implemented by Granite Rock Company to minimize and mitigate the impacts of mining activities in both the Current and

Future Mining Areas (the project) to the Plan Species covered in the HCP and their habitats and to further the conservation of these species.

Under the HCP, at the time that Granite Rock Company satisfied the conditions specified in the current mining approval as prerequisites to commencing mining in areas B or C of the Current Mining Area and prior to habitat disturbance it:

- Granted a conservation easement in perpetuity to the County of Santa Cruz for the 11.1-acre North Ridge Habitat Set-aside;
- Provided funding for and implemented protection and long-term management of the North Ridge Habitat Set-aside, including patrolling the North Ridge, ensuring that illegal access is not occurring on the North Ridge, erecting and replacing fences or other barriers and signs as necessary to prevent illegal trespass; and
- Implemented pertinent provisions of the HCP in order to avoid disturbing Plan Species in all areas of the quarry property, except for areas within the Current Mining Area, overburden and stockpile areas, and existing access road as shown in Map 2.

Consistent with the authorization received in 1997 from the County to commence mining in areas B and C of the Current Mining Area, Granite Rock Company also is required to:

- Enhance 2 acres of disturbed sand parkland on or adjacent to the project site, protecting and providing long term management of the area in a location satisfactory to the County, the Service and CDFG; and
- Revegetate slopes within the Current Mining Area with the goal of reestablishing habitat for the Plan Species.

At the time that Granite Rock Company receives authorization to commence mining in the Future Mining Area, and prior to habitat disturbance within the Future Mining Area, Granite Rock Company shall:

- Grant a conservation easement in perpetuity to the County for the 21.1-acre West Ridge Habitat Set-aside;
- Provide funding for and implement protection and long-term management of the West Ridge Habitat Set-aside, including patrolling the West Ridge to ensure that illegal access is not occurring on the West Ridge, erecting and replacing fences or other barriers and signs as necessary to prevent illegal trespass;
- Provide funding for and implement protection and long-term management of the 32.6 acre South Ridge Habitat Set-aside which the County of Santa Cruz is legally entitled and committed to purchase at the agreed upon fair market value. The County has raised the funds necessary to purchase the South Ridge at its agreed upon fair market value;

- Implement all provisions of the HCP in order to avoid disturbing Plan Species in all areas of the quarry property except for areas within the Current and Future Mining Areas, overburden and stockpile areas, and existing access road, as shown in Map 2; and
- Provide written agreement in the form of a Declaration of Restrictions (Mitigation Agreement) to protect in perpetuity from any and all disturbance all areas of the project site (except for areas within the Current and Future Mining Areas, overburden and stockpile areas, and existing access road as shown in Map 2) containing the Plan Species, State listed species, and County defined rare, endangered, or threatened species and sensitive habitats (the Protected Area). The Service, CDFG, and the County will have enforcement authority over the Declaration of Restrictions and the Service will be able to suspend Permit No. PRT-830417 if Granite Rock Company does not comply.

After receiving authorization to commence mining in the Future Mining Area, Granite Rock Company shall also:

- Enhance 3 acres of disturbed sand parkland and 5.2 acres of disturbed maritime chaparral on or adjacent to the project site in a location satisfactory to the County, the Service and CDFG, protecting and providing long term management of these areas along with the 2-acre sand parkland habitat enhancement area, the 32.2-acre North and West Ridge Habitat Set-asides, the 32.6-acre South Ridge Habitat Set-aside, and the Protected Area; and
- Revegetate slopes within the Future Mining Area with the goal of reestablishing habitat for the Plan Species.

The HCP and IA define measures to ensure that the elements of the HCP are implemented in a timely manner. Funding sources for implementation of the HCP, actions to be taken for unforeseen events, alternatives to the proposed project, and other measures required by the Service are also discussed. Reports documenting the presence of the two listed insect species at the Quail Hollow Quarry are included in Appendix A.

CHAPTER 1

PROJECT DESCRIPTION

A. Site Description

The 220-acre Quail Hollow Quarry is located in unincorporated Santa Cruz County near the communities of Ben Lomond and Felton (see Map 1, Regional Location). It is contained within Section 10 of Township 10S, Range 2W, Mount Diablo Baseline, and is included in the Felton Quadrangle, USGS 7.5 Minute Series, California -- Santa Cruz County. The Quarry is comprised of unmined areas containing natural vegetation, barren areas that are currently being mined, former hydraulically mined areas that are presently being invaded by native and non-native plants, and the operations area containing quarry offices, sedimentation ponds, processing facilities, product stockpiles and equipment storage (see Map 2, Site Topography).

The quarry property encompasses eight natural vegetation types: northern maritime chaparral, successional scrub, central coastal scrub, maritime coast range ponderosa pine forest, hardwood-conifer woodland, sand parkland, central coast live oak riparian forest, and central coastal arroyo willow riparian forest (see Map 3, Vegetation Communities). The vegetation types are arrayed in a mosaic over near-level bottomlands, steep slopes and ridgelines, all underlain by ancient marine sandstone and mudstone formations, most of which are collectively referred-to as the Zayante series, derived from Santa Margarita Sandstone. The unique array of soil conditions and coastally-influenced summer climate creates distinct habitat characteristics, and numerous sensitive plant and wildlife species are identified as occurring on or near the site.

Listed species that occur on the site and which will be covered in the HCP are:

Animals

- *Polyphylla barbata* -- Mount Hermon June beetle (FE)*
- *Trimerotropis infantilis* -- Zayante band-winged grasshopper (FE)

Plants

- *Erysimum teretifolium* -- Ben Lomond wallflower (FE, SE)**
- *Chorizanthe pungens* var. *hartwegiana* -- Ben Lomond spineflower (FE)

* Federal Endangered (FE)

** State Endangered (SE)

Most sensitive species are confined to specific natural habitat areas, but more mobile species have the potential to occur within active or proposed Future Mining Areas.

Land uses surrounding the quarry include rural residential and recreational uses including a County Park. The County Park includes equestrian boarding facilities and an additional private boarding facility is located nearby. Portions of the project site, including the South Ridge, are used by the local equestrian community. The North Ridge Habitat Set-aside area is in close proximity to the Quail Hollow County Park. The South and West Ridges are adjacent to rural

residences. Another sand quarry and the communities of Felton and Ben Lomond are located nearby (see Map 1).

B. History of Conservation Planning Process

In the early 1990's, Granite Rock Company filed a law suit against the County claiming vested rights to mine Quail Hollow Quarry. In an effort to settle the litigation out of court, a Judgment pursuant to a Stipulation for Entry of Final Judgment (Stipulation) was entered by the Superior Court on June 24, 1994. The litigation involved Granite Rock Company, the County, and Intervenor Sierra Club, California Native Plant Society and the South Ridge Watershed Association. The Stipulation requires that:

- Granite Rock Company sell the 32.6 acre South Ridge to the County at the agreed upon fair market value prior to or at the time that Granite Rock Company receives its future mining approval;
- Granite Rock Company be permitted to conduct mining operations in Current and Future Mining Areas, after obtaining permits and satisfying preconditions to mining, and to stockpile overburden in designated areas. This area comprises 102 acres;
- Granite Rock Company provide a written agreement to not disturb all protected species, including species of concern, in perpetuity in all areas of the quarry that are not subject to mining (this excludes Current and Future Mining Areas, stockpile area, overburden area, and existing access road). This area comprises about 45.2 acres;
- Granite Rock Company grant to the County a conservation easement in perpetuity for the 21.1 acre West Ridge and 11.1 acre North Ridge areas; and
- Granite Rock Company fund preparation of a biotic study that includes a "Revegetation Plan, Habitat Conservation Plan, Habitat Management Plan, and Mitigation Agreement."

This HCP is being prepared to satisfy conditions of the Stipulation and to satisfy the statutory requirements pursuant to the ESA and CESA for the take of Plan Species at the Quail Hollow Quarry incidental to Granite Rock Company's mining activities. The Land Status under the HCP is shown in Map 4.

C. Project Description

This HCP covers the continued operation of existing sand mining operations in the Current Mining Area as well as future expanded sand mining operations in the Future Mining Area of the Quail Hollow Quarry.

1. Current Mining Area (Mining Areas A, B, and C)

The Current Mining Area is located in the south central portion of the site on roughly 19 acres. A map of the mining areas is presented in Map 2. The Quail Hollow Quarry produces industrial sand. It is estimated that there are one to two years of sand remaining in the Current Mining Area.

Mining is presently occurring on the floor of the Current Mining Area which is being lowered in elevation down to its final contour of 530 MSL (mean sea level), and in Areas B and C of the Current Mining Area, which contain listed species. An older section of the Current Mining Area has been reclaimed.

Current mining operations consist of the removal, processing, and sale of industrial sands. The finest sands are used in glass making, with poorer sands sold for construction purposes. The quarrying process consists of removing overburden and stockpiling it along the margins of the sand pit, then excavating the sand using a caterpillar tractor. The excavated sand is stockpiled at the processing plant until it is processed into a specific product. The finished product is loaded into hauling trucks and taken to various markets in the San Francisco Bay Area and the Central Valley.

Two overlapping systems of sediment ponds, culverts, and pumps are in place which handle wash water and storm run off. Sediments are removed several times a year as necessary to restore holding capacity.

2. Future Mining Area

The Future Mining Area covers 83 acres which include the existing processing area and overburden stockpile area (see Map 2). The site would be mined creating a bowl shape with the side slopes benched down to a relatively flat quarry floor (2% slope). The rim elevation would vary from 725 feet at the southern (current) mining area to 600 feet at the northern mining boundary. The quarry floor elevation ranges from 550 to 520 feet from west to east. No change is proposed in the quarry's current slope configuration (10 feet wide benches at 30 feet vertical intervals).

The working face of the Current Mining Area would be advanced into the expansion area in a west to north direction. Generally, the sand will be extracted along the perimeter of the mining boundary, working from the top of the slope down to the quarry floor. Based on the phasing map, roughly 5 to 10 acres will be actively mined at any given time. The extent of the surface area disturbed will largely depend on the depth of the sand deposit in that particular phase area.

The Stipulation specifies the maximum production level that may occur from future operations at the Quail Hollow Quarry. The actual production level would be based on market opportunities and would vary with customer orders. Maximum yearly production levels set by the Stipulation are:

150,000 tons/year up to July 1997 or until project approval, whichever is later
300,000 tons/year up to year 2000
325,000 tons/year up to year 2005
350,000 tons/year after 2005*

* after year 2005 Granite Rock Company can amend its mining permit to increase production to 450,000 tons/year provided that 45% of the production amount is shipped by rail rather than transport trucks.

Approximately 13 ½ million tons of sand reserves are contained within the Future Mining Area. At the current production level of 150,000 tons per year, mining reserves in the Future Mining Area could last approximately 90 years. Likely production rates in the future will range between 150,000 and 350,000 tons per year. Production at the maximum level of 450,000 tons per year would shorten the quarry life to 30 years, however, this level of production requires the use of rail for shipment of any sand over 350,000 tons per year. It is unlikely that Granite Rock Company will obtain the necessary permits to use rail for shipment because such use would require costly and substantial rail transfer improvements, public support, and processing of permit amendments. Market conditions for both the industrial and construction sand will dictate production levels and the quarry life.

Mining operations within the Future Mining Area will be similar to those described for the existing mining operation as specified in the Conditions imposed by the County in its 10 June 1998 approval of Granite Rock Company's Future Mining Plan. These conditions are very similar to those imposed in 1993 on the mining approval for the Current Mining Area.

CHAPTER 2

BIOLOGICAL DATA AND SPECIES OF SPECIAL CONCERN

A. Species Descriptions and Overall Status

1. Mount Hermon June Beetle and Zayante Band-winged Grasshopper

The two insect species described below: Mount Hermon (Santa Cruz) June beetle (*Polyphylla barbata*), and Zayante band-winged grasshopper (*Trimerotropis infantilis*) are listed as endangered under the Endangered Species Act (ESA). The listings, effective February 24, 1997, are based upon evidence indicating that they have experienced general declines in overall distribution, have suffered direct population losses in specific areas, or are considered vulnerable to population extirpation or extinction due to perceived threats to known habitat. The Final Rules for the two insects are included in Appendix A.

The two insects are associated ecologically with sandy substrates, although perhaps not restricted to them, and all have limited distributions within the Santa Cruz mountain range. The grasshopper appears to have the most specialized habitat requisites, thus far being known only from open sandy substrates within a few vegetation community types, most notably the sand parkland association.

The most apparent threat to the continued existence of the two insects are habitat loss and degradation which combine to restrict, fragment and isolate existing populations. Development within the range of these insects has already affected much of their known population range, and they are particularly threatened by large-scale surface resource changes, such as multiple-unit residential and commercial projects, sand and gravel quarries, highways, flood control projects, and reservoirs. Fire reduction clearance, equestrian facilities, intensive grazing by any hooved stock, off-road vehicle use, and other actions which alter substrates, destroy native vegetation or change surface cover values would undoubtedly lead to the decline or extirpation of populations within the affected area.

The listing protects these Plan Species from take under Section 9 of the ESA. This HCP is being prepared to support an application to amend the existing Incidental Take Permit No. PRT-830417 to allow quarrying in the Current and Future Mining Areas at the Quail Hollow Quarry in conjunction with the implementation of the mitigation measures set forth below in this HCP.

The following information for the two listed insects was taken from summaries of reports prepared by Frank Hovore in 1996. Information is also included for the Santa Cruz rain beetle (*Plecoma conjungens conjungens*) in Appendix A. However, this species was withdrawn from listing based on new information that its population is more widespread than previously known (Federal Register, January 24, 1997). The reports describe the results of insect surveys conducted at Quail Hollow Quarry. The full text of the Hovore reports are included in Appendix A of this HCP.

a. Mount Hermon June Beetle

The Mount Hermon June beetle, also known as the Santa Cruz June beetle, was originally described from a series of specimens taken at Mt. Hermon, with no notation given of habitat type or immature stages. The striped June beetles of the genus *Polyphylla* are distributed over most of North America, with their generalized pattern of occurrence having the most widespread species not confined to particular soil types, and usually having winged, flying females. Narrowly-distributed species, like the Mount Hermon June beetle, by contrast are limited by specific soil types (usually sand formations) and often have flightless females. Species found on sand sheet or dune formations often are active only late in the day or at dusk (a behavior pattern called "crepuscular"), less often at dawn. The flightless condition of the females may be an evolutionary response to the problem of being blown off suitable habitat substrates by the incessant winds which so often are present over open, sandy formations.

The adult male Mount Hermon June beetle is a cryptic small scarab beetle with a black head, dark blackish-brown elytra (thick leathery forewings) clothed with scattered long brown hair, and a striped body. The adult female is larger, with a black head, chestnut-colored elytra and golden hairs on the head, thorax, and legs (Young, 1988). The adult beetles are just under an inch long and a half inch wide.

Male Mount Hermon June beetles are readily attracted to lights for a brief period shortly after dark, but their specific flight capabilities and travel distances are not fully known. Collection of males at light source does not by itself serve to locate a beetle colony, nor provide data regarding population vigor or extent. However, low-wattage lights, placed low to the substrate, and situated to limit the line-of-sight can give relative indication of flight timing, intensity and local population densities, by habitat type.

Populations of the Mount Hermon June beetle occur within each of the three Habitat Set-aside areas within Quail Hollow Quarry. Based upon recent surveys and a thorough review of all other pertinent data, it appears that the proposed retention of the three Habitat Set-aside areas in an undisturbed, natural condition will serve to maintain and protect most of the viable population of this species within the Quail Hollow Quarry property. See Appendix A for more information on this insect.

b. Zayante Band-winged Grasshopper

The Zayante band-winged grasshopper is one of the smallest grasshoppers in the genus *Trimerotropis*, with an average body length of the male one half inch, and the female about three-quarters of an inch. The body and forewings are pale gray to light brown with dark crossbands on the forewings. The basal area of the hindwings is pale yellow with a faint thin band. The lower legs are blue-gray and the eye is banded.

The Zayante band-winged grasshopper is found in open, sandy clearings and on thinly-vegetated sandy soils throughout the conservation easement areas in Quail Hollow Quarry. It also occurs within the Future Mining Area and along lightly-used dirt roads and trails throughout the quarry perimeter. Its food plants have not been determined, but it appears to prefer sites with thin ground cover and a variety of native herbaceous and woody under story plants. It is rarely found

in clearings within areas of chaparral habitat, was not encountered on scraped or barren sites, and was not found in either riparian or woodland habitat types.

The Zayante band-winged grasshopper is commonly found within the South Ridge, West Ridge and North Ridge Habitat Set-aside areas, and does not appear to be jeopardized by any existing non-mining activities on the property. While possessing only limited dispersal abilities, it appears to utilize, at least on a transient basis, recovered spoils and other lightly-disturbed habitat areas, and individuals may be capable of moving from one easement to another during any given season of activity. Retention of unused trails and roads, manipulation of spoils deposits, and leveling of cuts and margins around the quarry might provide additional habitat or enhanced movement values for the species. See Appendix A for more information on this insect.

2. Ben Lomond Spineflower and Ben Lomond Wallflower

The Ben Lomond wallflower is listed by both the Service and CDFG as endangered. The Ben Lomond spineflower is listed as endangered by the Service.

The Ben Lomond wallflower and the Ben Lomond spineflower are endemic to sandstone and mudstone deposits in the Santa Cruz Mountains. In particular they are found within the "Ben Lomond sandhills". This specialized soil type supports two unique plant communities: sand parkland and northern maritime chaparral. The sand parkland community is made up of scattered ponderosa pine trees (*Pinus ponderosa*) intermixed with knobcone pine (*Pinus attenuata*), coast live oak (*Quercus agrifolia*), and occasionally the Santa Cruz cypress (*Cupressus abramsii*). The northern maritime chaparral is dominated by the silver-leaf manzanita (*Arctostaphylos silvicola*), which gives way to its local name the silver-leaf manzanita mixed chaparral.

a. Ben Lomond Spineflower

The spineflower genus (*Chorizanthe*), in the buckwheat family (*Polygonaceae*), comprises species of wiry annual herbs that inhabit dry sandy soils along the coast and inland. Many species of *Chorizanthe* are highly localized in their distribution due to the patchiness and limiting factors of soils that can support the species.

Chorizanthe pungens var. *hartwegiana* was distinguished from *C. pungens* var. *pungens* by James Reveal and Clare Hardham in 1989 after they noticed a difference between the coastal form and the inland form found "in the Ben Lomond sandhills area." The coastal species retained the name *C. pungens* var. *pungens*. The final rule on *C. pungens* has the variety *pungens* listed as threatened while the variety *hartwegiana* is listed as endangered.

The Ben Lomond spineflower has dark pinkish to purple scarious margins on the involucre lobes and a slightly ascending to erect habit. The heads are medium in size (1 to 1.5 centimeters (0.4 to 0.6 inches) in diameter) and distinctly aggregate. The plant is found on sandy soils that are the basis for the Ben Lomond sandhills communities in the Santa Cruz Mountains. The Ben Lomond spineflower is confined to outcrops of sandstone soils in the Santa Cruz Mountains from Big Basin State Park to the Felton area in the Santa Cruz Mountains. The majority of occurrences of the Ben Lomond spineflower are found on privately owned lands within the area generally bounded by the communities of Ben Lomond, Glenwood, Scotts Valley, and Felton. The Quail Hollow Quarry is within this area.

b. Ben Lomond Wallflower

The Ben Lomond wallflower is a biennial, or occasionally an annual, plant in the mustard family (*Brassicaceae*). Seedlings form a basal rosette of leaves, which then wither as the main stem develops flowers clustered in a terminal raceme. The flowers are a deep yellow with petals 1.3 to 2.5 centimeters (0.5 to 1.0 inches) long; the slender capsule reaches 10 centimeters (4 inches) in length and is covered with three-parted hairs. The leaves are simple and narrowly linear, a characteristic that separates this plant from other wallflowers.

The Ben Lomond wallflower is endemic to pockets of sandstone deposits in the Santa Cruz Mountains and is presently known from only a dozen scattered occurrences. These sandstone deposits support the unique ponderosa pine sandhill community, and the Ben Lomond wallflower seems to prefer sites with loose, uncompacted sand in openings between scattered chaparral shrubs. A dozen populations of the Ben Lomond wallflower occur within the area generally bounded by the communities of Ben Lomond, Glenwood, Scotts Valley, and Felton, with one outlying population occurring in the Bonny Doon area, 5 miles west of Felton. One population occurs at Quail Hollow Ranch, which is jointly owned by Santa Cruz County, the Nature Conservancy, and CDFG. All other populations are on private property, including the one at Quail Hollow Quarry.

Both the Ben Lomond spineflower and the Ben Lomond wallflower were listed as endangered due to the following factors affecting the species: expansion of sand quarrying activities, off-road vehicles, recreational activities, and acts of vandalism.

3. Other rare plants

Two other plant species of concern were mapped on the site in the spring of 1996: silver-leaf manzanita (*Arctostaphylos silvicola*) and naked-stemmed buckwheat (*Eriogonum nudum decurrens*). The majority of both the manzanita (34.5 of 44.5 acres) and the buckwheat (11 of 19 acres) were found in the West and South Habitat Set-aside areas. Both of these species will be included in the revegetation program and thus will be reestablished in appropriate locations in the Current and Future Mining Areas.

4. Sand Parkland Habitat

The following description is modified slightly from the Revised Draft Environmental Impact Report for the Quail Hollow Quarry, dated April 1993. Sand Parkland habitat is generally characterized by open, exposed, sandstone-dominated ridge lines, saddles, and upper flanks that support a diverse array of annual herbs, a scattered cover of annual grasses, perennial herbs, low growing shrubs, and widely scattered ponderosa pine trees. The California Natural Diversity Data Base includes Sand Parkland habitat in its Maritime Coast Range Ponderosa Pine Forest vegetation community and identifies it as priority A1.1, an "extremely rare, endangered and unprotected" natural community. The extent of Sand Parkland Habitat found at the Quail Hollow Quarry is shown in Map 3.

Specifically, Sand Parkland is derived from inland marine sands, known geologically as Santa Margarita sandstone (Zayante sands), which were deposited nearly 10 million years ago. These sands provide geologic substrate and soil conditions distinctive from those found predominately in

the region. The vegetation on this substrate has adapted to growing on coarse, well-drained soil with lower moisture holding capacity and low content of nutrients and organic matter. These conditions have prompted the evolution of a unique flora and associated wildlife habitat.

The vegetation complexes that occur on these sands are distinct from the more common mixed evergreen, redwood forest, and chaparral communities that surround them. The species and vegetation that are found growing on these substrates are adapted to a xeric (dry), hot, often exposed environment, resulting in a distinct biological island surrounded by a sea of forested habitat. The result is a flora disproportionately high in endemics (only known from this region), coastal relics (plants normally found only along the coast line), disjunct populations (populations found nowhere else in the region but possibly more common in other regions of the state) and/or locally restricted species (known from only a few locations in Santa Cruz County or the Santa Cruz Mountains).

The Sand Parkland community is recognized as significant because it is of very restricted distribution, occurring only on Santa Margarita sandstone in central Santa Cruz County. This community is also significant because it supports several rare and endangered species, a number of disjunct species, locally rare species, and variant populations which appear to be morphologically distinct from previously described species and may qualify for designation as rare, threatened, or endangered status (Harvey and Stanley, 1983; R. Morgan, 1979).

The remaining distribution of Sand Parkland is limited, even within the Zayante Hills area. It appears to be restricted to ridge lines with elevations ranging from 600 to 800 feet. The South Ridge at Quail Hollow Quarry is recognized as the best remaining example of Sand Parkland habitat containing the greatest concentration and diversity of sand specialty species.

B. Effects of the Proposed Action on the Plan Species

1. Mount Hermon June Beetle and Zayante Band-winged Grasshopper

Expanded sand quarrying at the Quail Hollow Quarry will result in the loss of habitat and individuals of the Mount Hermon June beetle and Zayante band-winged grasshopper in the Current and Future Mining Areas as the natural vegetation communities in which they are found are removed. Table 1 below provides a summary of impacts of mining activities on vegetation communities.

Take of the Mount Hermon June beetles during their non-active stage could occur through grading of substrate which contains beetles, or placement of topsoil or overburden on substrate that contains beetles. Take of Mount Hermon June beetles during their active flight season could occur through drowning in sediment ponds, and being crushed by traffic or machinery.

Take of the Zayante band-winged grasshopper could occur through grading of substrate which contains grasshopper eggs and larvae, or placement of topsoil or overburden on substrate that contains grasshopper eggs and larvae. Take of Zayante band-winged grasshopper during their active season could occur through being crushed by traffic or machinery.

a. Specific Impacts of Mining in Current Mining Area

A site-specific survey for the Zayante band-winged grasshopper in Area C of the Current Mining Area was conducted by Frank Hovore and David Weissman in August 1996. The survey was conducted during a more extended survey of the entire quarry property. The following is the summary of their report:

- The Zayante band-winged grasshopper is found in open, sandy clearings and on thinly-vegetated sandy soils throughout the three conservation easement areas in Quail Hollow Quarry. It also occurs within the Future Mining Area and along lightly-used dirt roads and trails through the quarry perimeter. Its food plants have not been determined, but it appears to prefer sites with thin ground cover and a variety of native herbaceous and woody understory plants. It is rarely found in clearings within areas of chaparral habitat, was not encountered on scraped or barren sites, and was not found in either riparian or woodland habitat types.
- The Zayante band-winged grasshopper presently has substantial populations within the South Ridge, [and the] West Ridge and North Ridge conservation easements, and would not appear to be jeopardized by any existing non-mining activities on the property. While possessing only limited dispersal abilities, it appears to utilize, at least on a transient basis, recovered spoils and other lightly-disturbed habitat areas, and individuals may be capable of moving between easements during any given season of activity. Retention of unused trails and roads, manipulation of spoils deposits, and leveling of cuts and margins around the quarry might provide additional habitat or enhanced movement values for the species.

In June 1996 Frank Hovore conducted a survey of the Mount Hermon June beetle at the Quail Hollow Quarry. The survey was directed at determining presence of the Mount Hermon June beetle in the three Habitat Set-asides and did not include a detailed survey of the Current Mining Area. During his survey, Mr. Hovore found the Mount Hermon June beetle associated with the following vegetation communities: northern maritime chaparral, central coastal scrub, sand parkland, and to a lesser degree, successional scrub. According to Hovore's report "males were observed flying low over the open sandy substrates in grassy clearings, amidst low scrub vegetation, around the margins of brush, and at the interface between open areas and oak-dominated woodlands. A few males were found outside the habitat areas, attracted to lights at the quarry operation facilities, but the majority of specimens encountered (175 of 177) were within the conservation areas."

The results of Hovore's study suggests that, although the Mount Hermon June beetle was not specifically observed in the Current Mining Area, there is suitable habitat for the beetle within the 3.5 acres of sand parkland, scrub, and maritime chaparral communities that exist there. In this case, the impact of the beetle from mining in the Current Mining Area is loss of 3.5 acres of suitable habitat.

TABLE 1
IMPACT OF MINING OPERATIONS ON VEGETATION (IN ACRES)*

| VEGETATION | CURRENT MINING AREA (acres lost) | FUTURE MINING AREA (acres lost) | HABITAT SET-ASIDES (acres protected) | OTHER PROTECTED AREAS** (in acres) | TOTAL ACRES IN HCP AREA |
|--------------------|-------------------------------------|------------------------------------|---|---------------------------------------|-------------------------|
| Conifer Woodland | 0 | 5 | 5 | 13 | 23 |
| Maritime Chaparral | 1 | 8 | 25 | 14 | 48 |
| Sand Parkland | >0.50 | 6 | 27 | 1 | 34.5 |
| Woodland | 0 | 6 | 5 | 3 | 14 |
| Scrub | 2 | 13 | 0 | 5 | 20 |
| Wallflower | 0.5 | 5 | 15.5 | Present But Not Mapped in detail | 21 |
| Spineflower | 0.5 | 5.5 | 40 | | 46 |
| Manzanita | 1 | 7 | 37.5 | | 45.5 |
| Buckwheat | 2 | 6 | 13 | | 21 |

* The acreages used in this table are based upon a comparison of the locations of mapped vegetation communities used in Figure 13 of the April 1993 EIR on the Current Mining Area with small scale air photos of the site taken in October 1995. No ground truthing of vegetation communities was done so the acreages should be considered rough estimates.

** Other protected lands are lands that contained listed species but are outside the mining areas and the Habitat Set-asides.

b. Specific Impacts of Mining in Future Mining Area

Hovore and Weissman found the Zayante band-winged grasshopper generally associated with the sand parkland and successional scrub habitat at Quail Hollow Quarry. It was not found within dense brush or overgrown ruderal habitats, or on scraped or hard-packed substrates. According to their report, none were seen on regularly-used roadways with compacted surfaces, or around leveled quarry areas, but they were often very common on little-used or abandoned road and trails. They found the highest density of individuals within natural habitat areas within open sand parkland, beneath ponderosa pine on the open, level top of the South Ridge Habitat Set-aside.

Based upon habitat associations, the Future Mining Area contains approximately 27 acres of habitat suitable for the Mount Hermon June beetle and Zayante band-winged grasshopper. This habitat would be lost over a period of several years as mining activities move into these areas. For this analysis suitable habitat consists of the sand parkland, maritime chaparral, and scrub vegetation communities.

The three Habitat Set-asides and the other areas to be permanently protected support roughly 72 acres of suitable habitat for the two insects. Observations of the two insects made by Frank Hovore in 1996 at the Quarry indicate that the best substrate for each of the insects are found within the Habitat Set-asides. Mr. Hovore believes that the population segments of each of the three insects which will be protected outside the Future Mining Area are of sufficient size and density to insure that each persists within the overall property. Any loss of individuals within the Future Mining Area should not jeopardize any of the Plan Species locally or regionally. However there is a possibility of direct and marginal impacts to protected species from actions peripheral to mining, and from other human activities such as lighting, recreational use, and runoff controls. Mitigation measures intended to reduce the impacts of these peripheral actions are discussed in Chapter 3.

2. Ben Lomond Spineflower and Ben Lomond Wallflower

a. Specific Impacts of Mining in Current Mining Area

The EIR prepared for the Current Mining Area in April, 1993 stated that mining in the Current Mining Area would remove approximately 0.30 acres of sensitive sand parkland habitat and 0.90 acres of silver-leaved manzanita chaparral habitat. There are small populations of both the Ben Lomond wallflower and Ben Lomond spineflower in these areas as shown in Maps 5 and 6, Covered Plant Species. These populations are small compared to populations found within the Habitat Set-asides and other protected areas of the quarry (see discussion under 2.b. below).

b. Specific Impacts of Mining in Future Mining Area

The distribution of the two plant species was mapped at the Quail Hollow Quarry in spring 1996 by Suzanne Schettler of Greening Associates. Note that on the maps a large portion of the area designated as "not mapped" consists of the existing mining area and areas that support quarry facilities. These areas do not contain significant populations of the plants of concern. The northwest arm of the property, which was also not mapped, has not been previously disturbed and may contain significant populations of the plant species of concern. However, plants within this area will be protected in perpetuity from mining disturbance pursuant to the Declaration of Restrictions that Granite Rock Company will provide to the Service, CDFG, and the County.

Of the population of Ben Lomond wallflower that was mapped in the spring of 1996, approximately three-quarters (15.5 acres) is within the Habitat Set-asides. The other one-quarter (5.7 acres) is within the Current and Future Mining Areas and would be lost from mining activities. Map 5 shows occurrences of the wallflower in the undisturbed portion of the Current Mining Area; these comprise about 5 acres.

The wallflower will be replaced within portions of the Future Mining Area that are revegetated in accordance with the Future Mining Area reclamation plan. According to Suzanne Schettler.

revegetation consultant, Ben Lomond wallflower is an opportunistic invader. In natural situations where disturbance has occurred in an area adjacent to an existing population of Ben Lomond wallflower, the plant has invaded into the disturbed areas on its own. Seeds are easy to collect and should be amenable to re-establishment in appropriate areas after mining is completed.

Of the population of Ben Lomond spineflower that was mapped in 1996, over three-quarters (34 acres) is within the Habitat Set-asides, while less than one-quarter (6 acres) is within the Current and Future Mining Areas (see Map 6). The undisturbed portion of the Future Mining Area has a population of spineflower, comprising 5.5 acres. Plants within the mining areas would be lost. Reestablishment of this species in reclaimed areas should be easy since it is also an opportunistic invader, and, according to Schettler, would probably recolonize itself in the disturbed areas without human assistance.

The two other plant species of concern were mapped on the site in the spring of 1996: silver-leaf manzanita (*Arctostaphylos silvicola*) and naked-stemmed buckwheat (*Eriogonum nudum decurrens*). The majority of both the manzanita (37.5 of 45.5 acres) and the buckwheat (13 of 21 acres) were found in the Habitat Set-aside areas (see Maps 7 and 8). Both of these species will be included in the revegetation program and thus will be reestablished in appropriate locations in the Current and Future Mining Areas.

CHAPTER 3

MEASURES INTENDED TO MINIMIZE AND MITIGATE THE TAKE OF PLAN SPECIES

Prior to the Stipulation being reached several biological studies were conducted on the Quail Hollow Quarry property. The three Habitat Set-asides identified in the Stipulation were considered to contain the best sand parkland and maritime chaparral habitat on the site. The 1996 surveys conducted on the site for the two listed insect species and the two listed plant species show that the Habitat Set-asides do contain the highest concentrations of the species, with lesser concentrations and habitat values within the mining area boundaries.

The primary measures proposed to minimize and mitigate impacts to the Plan Species are the establishment of three Habitat Set-asides comprising a total of 64.8 acres, and the protection in perpetuity of about 45.2 acres of lands (Protected Area) surrounding the mining area and connecting the three set-asides (see Map 4). One of the set-asides, the 11.1 acre North Ridge, was established to mitigate impacts of mining in the Current Mining Area. The other two set-asides comprising 53.7 acres (West Ridge and South Ridge) and the Protected Area shall be established to mitigate impacts in the Future Mining Area.

Mitigation of impacts will take place through: 1) the identification and implementation of management activities, as detailed in the Long-term Management and Maintenance Plan to be completed by 1 March 2000, for the three Habitat Set-asides, the Protected Area, enhanced areas, and the revegetated slopes,, 2) enhancement of 10.2 acres of disturbed sand parkland and maritime chaparral habitat, 3) permanent protection of the Plan Species from all disturbance in the Protected Area , through establishment of a Declaration of Restrictions, 4) reestablishment of Plan Species on mined slopes 5) specific measures to reduce impact on listed insects, and 6) monitoring and reporting. Granite Rock Company shall, as a part of all management, enhancement and restoration plans discussed below, have the goal of establishing self-sustaining plant communities consisting of native indigenous species emphasizing the four special status species. Performance standards, which shall be detailed in the Long-term Management and Maintenance Plan, shall include intermediate standards that are intended to detect the need for remedial activities. As part of all management, enhancement and restoration plans, a contingency element shall be developed that will be implemented upon failure to meet intermediate or final performance standards.

A. Identification and Implementation of Management Activities for the Habitat Set-asides

1. For Current Mining Area: North Ridge

At the time Granite Rock Company received authorization from the County to commence mining in areas B and C of the Current Mining Area and prior to habitat disturbance it granted a conservation easement in perpetuity on the 11.1 acre North Ridge Habitat Set-aside to the County. In addition, Granite Rock Company provided for protection and long-term management of the North Ridge. Management activities for the North Ridge, which Granite Rock Company will fund or use its staff to carry out, are described below with action items shown in *italic type*.

The North Ridge is comprised of sand parkland and northern maritime chaparral plant communities (see Map 3). All four of the Plan Species are found in this area. The North Ridge is in good shape biologically and does not need much active management. Since the site is adjacent to the Quail Hollow County Park, it may be possible to coordinate management of the North Ridge with the County Park.

A foot and horse trail traverses along the ridge. Several side trails branch off from the main ridge trail. *The North Ridge Set-aside will be closed to public access. The County holds the conservation easement for the North Ridge and, consistent with that easement and with the categorical approval of the Service and CDFG, may authorize access to the North Ridge on a case by case basis for educational, scientific, or other purposes that are in accordance with the express purposes of the conservation easement. Granite Rock Company, in consultation with and with concurrence from the County, the Service, and CDFG, shall restrict access through use of fences or other barriers and shall post signs to explain the restrictions on the North Ridge and to prevent illegal access. Granite Rock Company, in consultation with and with concurrence from the County, the Service, and CDFG, shall close trails and, where appropriate, restore trails to promote establishment of Plan Species. The Outreach Program, discussed below in the discussion of the South Ridge, shall include information on the North Ridge Set-aside. Granite Rock Company shall have access to the North Ridge for purposes consistent with its permits.*

The most notable concern in this area was the presence of young ponderosa pine trees growing in closely spaced clumps. Under natural conditions fire would eliminate many young trees, thus maintaining the open sand areas between the trees. A fire management program would be difficult at this site due to the presence of dense vegetation growing next to much of the site and nearby homes. *Instead of a fire management program, in consultation with, and with concurrence from, the Service and CDFG, Granite Rock Company may thin young pine trees in the area so that they are spaced more appropriately for sand parkland habitat. To determine proper spacing, an area of natural sand parkland habitat either on the North Ridge or on the South Ridge will be selected, and tree distances measured. Using these natural tree distances, trees will be identified for removal to create appropriate open spaces between trees. When selecting the trees to save, the size, health and growth habitat of the trees will be considered. The trees must be cut using a chain saw and removed from the site. An access route to the trees must be selected which minimizes ground disturbance.*

A gully has been formed above the quarry sediment pond from surface water run off. *Although the gully did not appear to be actively eroding, Granite Rock Company shall monitor it during heavy rainy periods for potential erosion. In consultation with, and with concurrence from, the Service and CDFG, Granite Rock Company shall regrade the altered topography at the head of this gully to sheet flow surface water down the sidehill rather than focusing it into the gully.*

Although the site contained only a couple of French broom plants on the western edge of the site, there is potential for invasion of this and other pest plants (pampas grass, acacias, etc.) from nearby sources. *In consultation with, and with concurrence from the Service and CDFG, Granite Rock Company shall remove the broom plants and other exotic plants and shall monitor the area to assure that continued encroachment does not take place.*

2. For Future Mining Area

At the time Granite Rock Company receives the necessary authorizations from the Service, CDFG and the County to commence mining in the Future Mining Area and prior to habitat disturbance within the Future Mining Area, it shall grant to the County a conservation easement in perpetuity on the 21.1 acre West Ridge Habitat Set-aside and shall provide funding for protection and long-term management of the West Ridge. It will also provide funding for long-term management of the 32.6 acre South Ridge Habitat Set-aside which the County of Santa Cruz is legally entitled and committed to purchase at the agreed upon fair market value. Granite Rock Company shall also record a Declaration of Restrictions to permanently protect the habitat in the 45.2-acre Protected Area and shall provide funding for its protection and long-term management. Management activities for the South and West Ridges and for the Protected Area are described below with action items shown in bold italic type.

a. South Ridge (32.6 acres)

This set-aside area contains sand parkland, northern maritime chaparral, central coastal scrub, and woodland plant communities. It should be noted that of the three set-aside areas, the South Ridge has the greatest diversity of vegetation assemblages. As an example, some species are found mostly on north-facing slopes, with a gradation in species distribution down the slope. Species found near the top of the north-facing slopes in bare sand include: *Hesperomecon linearis*, *Collinsia bartsiaefolia*, *Muilla maritima*, *Minuartia douglasii*, and *Layia* sp. Lower on the north-facing slopes are found: *Delphinium parryi*, *Phacelia douglasii*, *Linanthus parviflorus*, and *Plagiobothrys tenellus*. The more stable north-facing slopes, coated with bryophytes, support perennials including: *Armeria maritima*, *Saxifraga californica*, *Silene verecunda*, *Horkelia cuneata*, *Dudleya cymosa/palmeri*, *Delphinium parryi*, and *Diplacus aurantiacus*. All of the Plan Species occur in the area.

Several foot and horse trails traverse the site in this area. Erosion and unmanaged recreational use, including horse, pedestrian, and vehicular traffic, are the primary management concerns for the South Ridge. Horse foot holes were noted in open sand areas with resulting damage to fragile vegetation. The trail that runs along the ridge appears to be broadening as may be the trail on the northeast side. The sand at the site is especially fine textured and erodes easily when disturbed. The trail from Liebenberg flat has washed out, resulting in a deep and impassable chasm. As a result, horse riders have created an alternate trail. Narrow trails were observed off of the main trail. Steep trails showed obvious signs of erosion. Additionally, at the request of CDFG, Granite Rock Company placed a fence across the west end of the ridge, resulting in some increased erosion at the fence ends as recreationalists move around the ends of the fence.

The County shall purchase the South Ridge for conservation purposes. Access to the South Ridge shall be governed by the principle that the habitat and biological resources must have priority over public access because of the rare, threatened, and endangered species and habitats on the South Ridge. The County, in authorizing access to the South Ridge, shall also be governed by the fact that preservation of the biological resources on the South Ridge is required mitigation for Granite Rock Company's incidental take of Plan Species and their habitats in the Current and Future Mining Areas. Additionally, in obtaining funding for purchase of the South Ridge, the County has incurred contractual obligations to preserve the scientifically unique and globally significant Sand Parkland Habitat. Therefore, the South

Ridge shall be closed to public access, except for one trail across the west end of the Ridge, as discussed below. Consistent with these goals and obligations, and with the categorical approval of the Service and CDFG, the County may authorize access to the South Ridge on a case by case basis for educational, scientific, or other purposes. Granite Rock Company shall have access to the South Ridge for purposes consistent with its permits.

The existing trail across the west end of the South Ridge, adjacent to the former Liebenberg property, shall continue to be accessible to local horse riders and hikers and shall be identified and signed. This trail leads to the road constructed by Granite Rock Company inside the Current Mining Area and provides access to riding and hiking areas within the quarry. Granite Rock Company shall close all other trails, and shall restore them to their June 30, 1994, condition, pursuant to the Agreement for Purchase and Sale of the South Ridge. Granite Rock Company, in consultation with and with concurrence from the Service, CDFG and the County, shall restrict access through use of fences or other barriers that avoid habitat degradation adjacent to the fences and that allow wildlife movement. Granite Rock Company, in consultation with and with the concurrence of the Service, CDFG, and the County, shall also post signs explaining the restrictions on the South Ridge, the significance of the habitat, and directing riders and hikers to the access that is permitted across the west end of the South Ridge.

Granite Rock Company shall conduct, in consultation with the Service, CDFG, the County and other concerned parties, an Outreach Program, including but not limited to public informational meetings and producing and distributing brochures informing residents about the biological resources, restrictions and designated open recreational areas on the Quail Hollow Quarry. Input received through the Outreach Program will be considered for inclusion in the Long-term Management and Maintenance Plan discussed in Section G below.

The skirts of the South Ridge are vegetated with chaparral, especially silver-leaved manzanita. Ceanothus and knobcone pines occur on the north slopes. Ponderosa pine colonization follows disturbance, and it is declining on the south side of the South Ridge. In consultation with and with the concurrence of the Service, CDFG, and the County, Granite Rock Company may need to arrest succession periodically.

There is potential for invasion of French broom and other pest plants (pampas grass, acacias, etc.) from nearby sources. In consultation with, and with concurrence from the Service, CDFG and the County, Granite Rock Company shall remove the broom plants and other exotic plants and shall monitor the area to assure that continued encroachment does not take place.

The management activities described above are not the exclusive means of ensuring the protection of the sensitive species and habitats existing on the South Ridge. The County and Granite Rock Company currently have the authority and obligation, pursuant to the June 30, 1994 Agreement of Purchase and Sale for South Ridge of Quail Hollow Quarry, to maintain the South Ridge in its existing state as of June 30, 1994. Should any act or failure to act, as required under the HCP, the IA, or the Permit as amended, by the County, without prior approval of the Service and CDFG, result in degradation or loss of Plan Species or their habitats, enhancement or restoration

shall be the obligation of the County, and shall not be cause for Permit revocation by the Service or CDFG, to the extent permitted by law.

b. West Ridge (21.1 acres)

This area contains coastal scrub and sand parkland plant communities. All of the Plan Species occur in the West Ridge Set-aside.

A portion of this area appears to be used as a nighttime party spot for locals (fire ring, broken beer bottles, large area of disturbed ground). Portions of the sand parkland were degraded by frequent pedestrian or equestrian traffic, both on and off existing trails, and vehicle trespass was noted in mid-May 1996. Some of the lighter disturbance appeared to promote the growth of wallflower and spineflower. Despite heavy use of the site by locals and pipeline disturbance near the top, the West Ridge has some good areas of sand parkland habitat and has good populations of some of the rare plants.

The West Ridge Set-aside will be closed to public access. Granite Rock Company, in consultation with and with concurrence from the County, the Service, and CDFG, shall restrict access through use of fences or other barriers. Granite Rock Company shall clean up the broken glass and fire rings. Granite Rock Company shall fence off sensitive wallflower and spineflower areas that have been used for recreational activities, using post and cable type fence, or some other means approved by the Service and CDFG. The County will hold the conservation easement for the West Ridge and, consistent with that easement and with the categorical approval of the Service and CDFG, may authorize access to the West Ridge on a case by case basis for educational, scientific, or other purposes that are in accordance with the express purposes of the conservation easement. Granite Rock Company, in consultation with and with the concurrence of the Service, CDFG, and the County, shall post signs to explain the restrictions on the West Ridge and to prevent illegal access. Granite Rock Company, in consultation with and with concurrence from the County, the Service, and CDFG, shall close trails and, where appropriate, restore trails to promote the establishment of Plan Species. The Outreach Program, discussed above in the discussion of the South Ridge, shall include information on the West Ridge Set-aside. Granite Rock Company shall have access to the West Ridge for purposes consistent with its permits.

There is potential for invasion of French broom and other pest plants (pampas grass, acacias, etc.) from nearby sources. *Granite Rock Company shall, in consultation with, and with concurrence from the Service and CDFG, remove the broom plants and other exotic plants and shall monitor the area to assure that continued encroachment does not take place.*

c. Protected Area (45.2 acres)

The Protected Area consists of about 45.2 acres surrounding the Current and Future Mining Areas, excluding the stockpile and overburden areas and the existing access road (Map 4). These areas contain conifer woodland, northern maritime chaparral, central coastal scrub, sand parkland, and woodland plant communities. These communities, while supporting Plan Species, do not support as high a density of Plan Species as do the North, West and South Ridge set-asides.

Granite Rock Company shall, in consultation with and with the concurrence of the Service, CDFG, and the County, include in its Long-term Management and Maintenance Plan provisions for monitoring, maintenance, enhancement and recreational uses within the Protected Area. Granite Rock Company, with technical assistance from the Service, CDFG, and the County, shall identify existing equestrian and pedestrian trails within the Protected Area. Continued reasonable recreational use of existing maintained trails of no more than eight feet in width and with well-defined edges that have been identified as having a low impact to biological resources may be allowed. Motorized and non-motorized vehicles, including bicycles, are not allowed on trails within the Protected Area, except as may be required for management, enhancement or maintenance purposes consistent with Granite Rock Company's Mining and Take Permits. If biological monitoring indicates that recreational use of this area is impacting Plan Species or their habitats, Granite Rock Company may on its own initiative, or at the request of the Service, CDFG, and the County, limit use of trails in scope or time, or close the Protected Area, or portions thereof, to all recreational use, as appropriate.

If closed to public access, Granite Rock Company may, with the categorical approval of the Service, CDFG, and the County authorize access to the Protected Area on a case by case basis for educational, scientific, or other purposes that are in accordance with the express purposes of the Declaration of Restrictions. In consultation with and with the concurrence of the Service, CDFG, and the County, Granite Rock Company shall post signs to explain any restrictions on the Protected Area and to prevent illegal access. Granite Rock Company, in consultation with and with concurrence from the County, the Service, and CDFG, shall close trails and, where appropriate, restore trails to promote the establishment of Plan Species. Granite Rock Company shall have access to the Protected Area for purposes consistent with its permits.

The Outreach Program, discussed above, in the discussion of the South Ridge, shall include information on the Protected Area. Granite Rock Company shall post signs explaining restrictions and identifying designated maintained trails. Additionally, in consultation with, and with concurrence from, the Service and CDFG, Granite Rock Company shall remove the broom plants and other exotic plants and shall monitor the area to assure that continued encroachment does not take place.

The Stipulation requires Granite Rock Company, either prior to or concurrent with the approval of the Future Mining Approval, to execute and deliver to the other settling parties an agreement to protect in perpetuity from any and all disturbance the Protected Area. Additionally, the Service and CDFG have required that the Protected Area be protected in perpetuity as mitigation for the incidental take of Plan Species in the Current and Future Mining Areas.

To comply with the requirements of the Incidental Take Permit and the Stipulation, Granite Rock Company shall, in consultation with and with the concurrence of the County, the Service and CDFG, establish and record a Declaration of Restrictions over the 45.2 acres comprising the site outside of the set-asides, excluding the Current and Future Mining Areas, the stockpile and overburden areas, and existing access road.

B. Additional Enhancement of Sand Parkland and Maritime Chaparral Habitat

The Stipulation specifies the conditions to be imposed on future mining activities, which include the requirement that at least an additional 5.0 acres of disturbed sand parkland habitat and 5.2 acres of maritime chaparral habitat be enhanced and permanently protected. In addition, the Stipulation requires that a long-term management and maintenance program for the enhancement areas be specified to assure long-term survival of the Plan Species. The Service and CDFG have also required this enhancement as part of their Permit requirements to mitigate for impacts to Plan Species and their habitats in the Current and Future Mining Areas.

A program for the enhancement of two of the five acres of sand parkland habitat that Granite Rock Company must enhance, was approved by the Service, CDFG and the County when Granite Rock Company received authorization to commence mining in Areas B and C of the Current Mining Area. The two-acre enhancement program must be finalized and the beginning phases implemented prior to habitat disturbance in the Future Mining Area. Prior to habitat disturbance in the Future Mining Area, a program for the enhancement of the remaining 8.2 acres of sand parkland and maritime chaparral habitat will be prepared as a separate document and must be approved by the Service, CDFG, and the County. With the prior approval of the Service, CDFG, and the County, Granite Rock Company may include, in the 10.2 acres of land to be enhanced or restored, restoration and enhancement of trails that are within or adjacent to sand parkland habitat or maritime chaparral in the North and West Ridge conservation easements, in the Protected Area, and on the South Ridge (beyond that required to maintain the environment to its June 30, 1994 status pursuant to the June 30, 1994 Agreement for Purchase and Sale of the South Ridge).

C. Re-establishment of Plan Species on Mined Slopes

The revegetation plan prepared by Greening Associates, dated November 1997, has the goal of establishing a self-sustaining plant community consisting of native indigenous species including the four special status species. Performance standards address this goal and conform to the requirements of the Santa Cruz County Mining Ordinance and the State Surface Mining and Reclamation Act. Performance standards include intermediate standards that are intended to detect the need for remedial activities. As part of the revegetation plan, a contingency element has been developed that will be implemented upon failure to meet intermediate or final performance standards.

The revegetation plan for the Current and Future Mining Areas takes into account the recommendations and conclusions of Greening Associates' May 16, 1997, Comprehensive Report. The revegetation plan must be approved by the County, the Service, and CDFG prior to the onset of work in the Future Mining Area, and, upon approval, its terms and provisions shall be incorporated by reference into this HCP.

D. Specific Measures to Reduce Impacts on Insects of Concern

The following general measures are intended to prevent incidental loss of adults, immatures or habitat values of the Mount Hermon June beetle and Zayante Band-winged grasshopper within the protected populations. These activities will be carried out by Granite Rock Company for both mining phases:

- Shield existing exterior lights to focus illumination into specific work or security areas, taking care to avoid directing light outward toward the Habitat Set-asides. Replace white spectrum light bulbs with sodium vapor units, or either yellow, red or green incandescent lights to reduce their attractiveness to male beetles. Place outside lights on timers, seasonally adjusted to come on after 10:00 p.m. PDT during June and July, and to turn off at or before 4 a.m. PST during November. Lights shall not be placed within 20 feet of sediment ponds to avoid attracting male beetles into the water.
- Avoid placement of spoils in previously undisturbed habitat, or where erosion and runoff can carry loose materials into habitat areas. Direct all mining area surface runoff away from Habitat Set-asides. Gullies and other unnatural features which channel surface water toward native vegetation formations shall be carefully altered to restore natural drainage patterns through occupied habitat.
- The introduction and spread of invasive non-native plants has the potential to negatively affect herbivorous insect populations by reducing the extent and quality of their food resource. Non-native plants, particularly woody taxa, shall be removed from natural habitat areas throughout the property, with particular attention being given to the Habitat Set-asides.
- The North, South and West Ridges shall be closed to public access. The County may authorize access to these areas on a case by case basis, consistent with the principle that sensitive species and their habitats have priority over public access, as described in this Chapter 3. Both dogs and cats can and will capture and eat male and female beetles, dogs in particular being adept at detecting and excavating buried female beetles. Therefore, pets shall not be allowed anywhere on the property.

E. Monitoring and Reporting

The County of Santa Cruz or its designee will report annually, on or before 15 October, to the Service and CDFG regarding compliance with the mitigation requirements of the HCP. The report will include a discussion of the following elements:

- The amount and nature of incidental take within the reporting period, and the cumulative totals of incidental take, as Granite Rock Company submits to the County, pursuant to the Permit;
- Compliance with each avoidance, minimization and mitigation measure identified in Chapter 3 of this HCP;
- Status and condition of the three Habitat Set-asides and the Protected Area. Because the primary mitigation for the project is the establishment, enhancement, protection and management of the three Habitat Set-asides, the Protected Area, the 10.2 acres of enhanced sensitive habitat and the revegetated slopes, the monitoring program will emphasize controlling unauthorized use of the site, preventing illegal access, and maintaining fences and signs;

- Exotic pest plant control. There are only a few infestations of exotic pest plants on the property, however there are nearby sources just off-site. Granite Rock Company shall regularly remove invasive exotic pest plants, such as broom and pampas grass, as they are noticed by Granite Rock Company on the South, North and West Ridges, in the enhanced areas, revegetated slopes and the Protected Area. The annual report will provide an accounting of all exotic pest plant species control work conducted in the three Habitat Set-asides; and
- Monitoring of Plan Species to Assess Effectiveness of Mitigation Program. The Section 10(a)(1)(B) permit will authorize the take associated with monitoring the Mount Hermon June Beetle and Zayante band-winged grasshopper on the Quail Hollow Quarry site pursuant to the HCP. Only individuals authorized under this HCP shall handle Mount Hermon June beetles or Zayante band-winged grasshoppers. The Service will provide authorization of specific individuals upon review of their credentials which must be submitted to the Ventura Fish and Wildlife Office for review and approval at least 15 days prior to the onset of the activities which they are being authorized to conduct.

Mount Hermon June Beetle. Relative abundance surveys shall be conducted every other year during the adult flight season of the male June beetle, in late June. In order to provide comparable information regarding adult activity in all three focal conservation areas, 4 to 6 different low-intensity light stations shall be set up each night for two to three nights, usually two in each area, every night of the surveys, with modifications made to achieve specific objectives. The lights shall consist of generator-powered 15 watt blacklights, placed on white sheets, and set down into low depressions in the center of each sheet to insure that they are not visible for more than a low angle of direct sight. The intent is to draw flying males from specific areas of habitat, but not to attract them from distances greater than a few hundred feet. Lights shall be turned-on shortly before sundown and left running until about 11:00 to 11:30 p.m. PDT; one set of lights shall be operated from 4:30 to 5:30 a.m. PDT to determine presence or absence of a dawn flight. In addition to the light traps, entomologists shall be deployed in each site on different nights, tracking and observing the flying males from the onset of the crepuscular activity to its cessation. Observed individuals shall be documented noting habitat preferences and behavior.

Zayante Band-winged Grasshopper. Monitoring surveys for this species shall be conducted every two years and shall consist of quantitative and qualitative censusing, including establishment of linear transects through prime, occupied habitat within conservation easements, determining abundance baseline averages for each subsite (factored over several days during the peak activity season, usually in late August or early September). Transect sites can conform to those established during the fieldwork for the original report, and therefore can provide a direct comparison with the 1996 field data. Additionally, observations of habitat preference and food plants may be refined and confirmed.

Ben Lomond Wallflower and Ben Lomond Spineflower. The primary mitigation for the project is the establishment and protection of the three Habitat Set-asides, the establishment and protection of the Protected Area, enhancement of 10.2 acres of disturbed sensitive habitat, and revegetation of mined slopes. The monitoring program, to be implemented by the County or its designee, for established areas will focus on the documentation of habitat features, preventing illegal access, and maintaining fences and signs. The general population status and distribution of the two plants will be assessed every two years during their bloom periods. Observers will look for

trends that show increases or decreases in populations. If decreases are noticed, an assessment of the reason for the declining populations will be made, if possible.

After approval by the Service and CDFG, monitoring of the plant species in enhancement areas and on revegetated slopes will be conducted pursuant to the methodology of the Final Revegetation Plan, as amended if necessary, for the Quail Hollow Quarry prepared by Greening Associates and incorporated into the certified EIR for the Future Mining Area. Monitoring will be conducted by the County or its designee on an ongoing basis. General observations made while planting or conducting maintenance activities will be recorded, and important points will be summarized in annual revegetation reports as required by the County.

Systematic monitoring will take stock of the enhancement and revegetation progress at particular stages in the development of vegetation at a given site. Monitoring will be more concentrated during the initial years after establishment of an enhanced or revegetated site, and the intervals between monitoring will gradually increase. Monitoring in some years will be qualitative, consisting of a visual evaluation of a site, accompanied by photographs as appropriate. Quantitative monitoring will utilize the field monitoring methodology as described in the Revegetation Plan, as amended if necessary. The results of quantitative monitoring will be compared to the success criteria. In some cases, qualitative monitoring may include transects to spot-check particular sites.

F. Habitat Protection

Granite Rock Company shall patrol the South, North and West Ridges as well as the Protected Area. The Ridges shall be closed to public access, so Granite Rock Company's primary role will be to assure that illegal access is not occurring. Granite Rock Company will inspect ridge perimeters at least once per month to assure that no illegal access has occurred. Granite Rock Company will investigate any report of unauthorized access on the Ridges. Granite Rock Company will replace fences and signs as necessary to assure compliance with the terms of the HCP and to prevent illegal trespass.

G. Long-term Management and Maintenance Plan

Granite Rock Company shall prepare a Long-term Management and Maintenance Plan for the three Habitat Set-asides, the Protected Area, enhanced areas and revegetated slopes. This plan shall be developed in consultation with and with the approval of the Service, CDFG, and the County. Input from the signators to the Stipulation as well as the public shall be solicited and considered for inclusion. Public participation through the Outreach Program discussed in Section 1 of this Chapter will assist to develop provisions for continued reasonable recreational use of the Protected Area.

The Long-term Management and Maintenance Plan shall cover two phases: the first phase will address activities during the Permit Term; the second phase will address post-Permit Term management and maintenance in perpetuity of the three Habitat Set-asides, the Protected Area, enhanced areas and revegetated slopes. The plan will detail the management and maintenance activities to be carried out, incorporating applicable provisions from the enhancement plans discussed above in Section 2 and the Final Revegetation Plan. Post-Permit Term management, maintenance and monitoring will be developed and a non-wasting endowment fund established, as

discussed in Chapter 4 and in Section 11 of the IA, to fund the post-Permit Term activities. The endowment funds shall be used by Granite Rock Company or its designee upon termination of the Permit for required management activities in the three Habitat Set-asides and in the Protected Area, including but not limited to: conducting biological surveys to monitor the Plan Species; controlling non-native weeds; controlling succession in sensitive habitat areas; and other activities. The Long-term Management and Maintenance Plan shall be completed and approved by March 1, 2000.

CHAPTER 4

FUNDING AND ADMINISTRATION OF THE HABITAT CONSERVATION PLAN

The County of Santa Cruz or its designee will fulfill its obligations under the HCP and may contract with knowledgeable firms or individuals to assist with carrying out those obligations specified in Chapter 3 of this HCP.

In accordance with the Stipulation, Granite Rock Company will carry out itself or provide funding for implementation of all habitat management activities to take place on the 220 acre parcel, as specified in Chapter 3 of this HCP. The activities to be funded or carried out by Granite Rock Company directly are:

- Providing protection and long-term management in perpetuity for the North, South, and West Ridge Habitat Set-asides, the Protected Area, enhanced areas, and the revegetated slopes;
- Implementing management activities identified for the North and West Ridge Habitat Set-asides;
- Implementing the habitat enhancement program for the 10.2 acres of disturbed sand parkland and maritime chaparral habitat. Two acres of this enhancement will be done in conjunction with commencement of mining activities in areas C or B of the Current Mining Area; and
- Assuring that all areas of the property that contain Plan Species are permanently protected from disturbance, except in the Current and Future Mining Areas, overburden stockpile areas, and existing access road.

Activities to be funded by Granite Rock Company, but carried out by the County or its designee, include:

- Monitoring the relative population status of the Plan Species on a biannual basis; and
- Preparing and submitting by 15 October of each year a report of management and monitoring activities to the Service and CDFG.

Because Granite Rock Company has indicated that it will use its staff to carry out the management activities identified above and in Chapter 3 of this HCP, it is not necessary to estimate the cost of satisfying these obligations. The estimated annual costs for monitoring and reporting are as follows:

| | |
|----------------------------|----------------|
| Annual Reporting: | \$1,500 |
| June beetle surveys: | \$2,500 |
| Grasshopper surveys: | \$1,500 |
| <u>Rare plant surveys:</u> | <u>\$1,400</u> |
| Total Annual Expenditures: | \$6,900 |

Surveys for Mount Hermon June beetles, Zayante band-winged grasshoppers and rare plants will be conducted every other year. The amount to be paid by Granite Rock Company every year will result in \$5,000 being available for Mount Hermon June beetle surveys, \$3,000 for Zayante band-winged grasshopper surveys and \$2,800 for rare plant surveys. Two types of annual reports will be prepared and will alternate year to year: those which do not quantitatively address the biological resources on the site, and those which summarize the results of the plant and animal surveys. The first type of report would cost about \$1,000 to prepare, and the alternate year's report would cost \$2,000. The average annual cost will be about \$1,500 annually.

Granite Rock Company will pay the County a sum of \$6,900 on or before 1 April of each year (adjusted for inflation) for the monitoring and reporting activities. These funds shall be deposited in an account specifically designated for this work. Interest from this account shall be re-invested into the account. Excess funds shall also be re-invested into the account to cover costs associated with monitoring and reporting activities. At the conclusion of each two-year cycle, any excess funds shall be returned to Granite Rock Company, or credited towards the next two-year cycle at Granite Rock's discretion. Account records shall be available for inspection upon reasonable request by the signators to the Stipulation, the Service or CDFG.

Granite Rock Company shall also insure that funding is available to meet its obligations under this HCP, the IA, and the Section 10(a)(1)(B) permit through an account solely designated for this purpose as provided in Paragraph 11.3. of the IA.

Prior to habitat disturbance in the Future Mining Area, Granite Rock Company shall establish an account to ensure that funding is available to meet its obligations under this HCP, the Permit and the IA. The account shall be established in favor of a party approved by the Service and CDFG, and may be a trust account, irrevocable letter of credit, insurance or surety bond. The account, letter of credit, surety or insurance must not be disapproved by the Service or CDFG, shall be in the amount of no less than \$50,000, and shall be maintained for the life of the Permit. For the Permit term, this account shall be renewed every five years and the amount adjusted for inflation every five years so that this account will be maintained in an amount equal to \$50,000 in 1997 dollars. Funds from the account, insurance letter or surety shall only be used if Granite Rock Company is otherwise unable to meet its obligations under this HCP, the Permit, or the IA. In the event that it becomes necessary to use funds from this account, Granite Rock Company shall immediately replenish the account to maintain the amount at \$50,000 (adjusted to inflation, using an index such as the Consumer Price Index or its equivalent). At the end of the Permit Term, or upon termination of the Permit, whichever is sooner, and if Granite Rock Company has fulfilled all of its obligations under the Permit, this HCP, and the IA, funds remaining in this account shall revert to Granite Rock Company.

In conjunction with the Long-term Management and Maintenance Plan described in Chapter 3 of this HCP, Granite Rock Company shall provide a non-wasting management endowment, through a trust or escrow account approved by the Service and CDFG, in an amount to be determined in consultation with, and with the concurrence of, the Service and CDFG. The account, if invested as a special interest CD, shall mature at 15-year intervals. Prior to reinvestment, the amount shall be re-evaluated to assure that it is adequate to cover the cost of maintaining and managing the three Habitat Set-asides and the Protected Area. If it appears, based upon best efforts to calculate the remaining time to mine the Future Mining Area, that fifteen years is too long, the final investment period shall be less than fifteen years. At the end of the Permit Term or upon

termination of the Permit, whichever occurs first, interest generated by the fund shall be used by Granite Rock Company or its designee to implement the Long-term Management and Maintenance Plan. If capital funds are insufficient to cover these costs, Granite Rock Company shall invest such funds as are necessary to generate the required interest. If, however, the capital funds are an excess amount, the excess will be refunded to Granite Rock Company. The Habitat Set-asides and the Protected Area shall be managed, and the endowment administered, in accordance with the terms of the Long-term Management and Maintenance Plan approved by the Service, the CDFG and the County. Granite Rock Company shall provide the Service, CDFG, and the County, proof of the establishment of the non-wasting management endowment fund upon completion of the Long-term Management and Maintenance Plan or by March 1, 2000, whichever is sooner.

Interest generated by the endowment funds shall be used by Granite Rock Company or its designee upon termination of the Permit for required management activities in the three Habitat Set-asides, in the Protected Area, in enhanced areas and on revegetated slopes, including but not limited to: conducting biological surveys to monitor the Plan Species; controlling non-native weeds; controlling succession in sensitive habitat areas; and other activities to be determined in conjunction with the Service, CDFG, and the County.

CHAPTER 5

ALTERNATIVES TO THE PROPOSED ACTION

Section 10(a)(2)(A)(iii) of the Endangered Species Act of 1973, as amended, requires that alternatives to the taking of species be considered and reasons why such alternatives are not implemented be discussed. Two alternatives to the proposed project were considered. These alternatives are: the no action alternative and the no take alternative. A discussion of each alternative is presented below:

A. No Action Alternative

The No Action alternative would occur if the Service did not amend section 10(a)(1)(B) permit PRT-830417 for the proposed project. This alternative would prevent the landowner from carrying out mining in the Future Mining Area due to the presence of listed animal species in the area. Since all new sand deposits are overlain with vegetation that could support the listed species, sand mining at the quarry would cease at the time the current 10(a)(1)(B) permit expires on August 1, 2000. Granite Rock Company would have to complete reclamation of finished mined areas within the Current Mining Area in accordance with its approved reclamation plan. Granite Rock Company could submit an application to the County to develop the quarry floor with another land use which may or may not require the preparation of an HCP. Effects on the Plan Species may be better or worse than the proposed project alternative since active management of the habitat is not assured.

The preparation of this HCP for the Quail Hollow Quarry is required by the Stipulation and required by law for any future mining at the quarry. The No Action alternative would negate the terms of the Stipulation and could result in continued and lengthy litigation. In the meantime, the absence of the HCP would effectively preclude the sale of the South Ridge to the County and the establishment of the West Ridge conservation easement and the Declaration of Restrictions to protect the Protected Area in perpetuity.

The impacts of the proposed project, as mitigated by the conservation measures in the HCP, do not warrant the implementation of this alternative.

B. No Take Alternative

Due to the widespread distribution of listed animals and plants at the Quarry, particularly during the insects adult flight seasons, the No Take alternative is impractical and could not be implemented, without prohibiting further sand mining at the quarry. Surveys conducted for the Zayante band-winged grasshopper in August 1996 indicate that the grasshoppers are found throughout most of the Quarry property, except on scraped surfaces, hard packed ground, regularly used roadways, and leveled quarry areas. As a consequence, this alternative was not advanced for detailed analysis in the EA and will not be discussed further.

CHAPTER 6

OTHER MEASURES REQUIRED BY THE FISH AND WILDLIFE SERVICE

Section 10(a)(2)(A)(iv) of the Endangered Species Act of 1973, as amended, states that a Conservation Plan must specify "such other measures that the Secretary may require as being necessary or appropriate for purposes of the plan." Because HCPs often include relatively complex systems of phased mitigation and involve multiple parties, Region 1 of the Service usually requires that an Implementation Agreement be drafted and signed by each party to an HCP. An Implementing Agreement for this HCP has been drafted and reiterates the duties and responsibilities assigned to each party. It is attached as an accompanying document.

CHAPTER 7

CHANGED AND UNFORESEEN CIRCUMSTANCES

Section 10 regulations [50 CFR 17.22(b)(2)(iii)] require that an HCP specify the procedures to be used for dealing with changed and unforeseen circumstances that may arise during the implementation of the HCP. In addition, the Habitat Conservation Plan Assurances ("No Surprises") Rule [50 CFR 17.2, 17.22 (b)(5) and (6); 63 FR 8859] defines "unforeseen circumstances" and "changed circumstances" and describes the obligations of the permittee and the Service.

The purpose of the No Surprises Rule is to provide assurances to non-federal landowners participating in habitat conservation planning under the ESA that no additional land restrictions or financial compensation will be required for species adequately covered by a properly implemented HCP, in light of unforeseen circumstances, without the consent of the permittee.

The policy defines "unforeseen circumstances" as changes in circumstances that affect a species or geographic area covered by the HCP that could not reasonably be anticipated by plan developers and the Service at the time of the plan's negotiation and development and that result in a substantial and adverse change in the status of the covered species.

"Changed Circumstances" are those changes in circumstances affecting a species or geographic area covered by the HCP that can reasonably be anticipated by Granite Rock Company, the Service, and the other Parties to the IA at the time of preparation of the HCP, and for which the Parties can plan (e.g., the listing of new species, or a fire or other natural catastrophic event in areas prone to such events). If additional conservation and mitigation measures are deemed necessary by the Service to respond to Changed Circumstances that are provided for in the HCP, Granite Rock Company shall implement those measures.

Changed Circumstances. Granite Rock Company, in consultation with the Service, has identified the following Changed Circumstances: listing of a new species not covered by this HCP, vandalism, natural catastrophic events such as fire, severe wind or water erosion and earthquakes, and invasion by a habitat or species specific disease that threatens Plan Species or their habitats. If one of these Circumstances occurs, Granite Rock Company shall consult with the Service and CDFG to determine what additional mitigating measures Granite Rock Company shall implement.

If, during the Permit Term, the Service lists a new species which may be impacted by the Project, the HCP and the Permit shall be reevaluated, and modified if necessary, to ensure that Project activities do not result in take and are not likely to jeopardize the continued existence of such species or adversely modify any designated critical habitat of such Species. Granite Rock Company shall implement any modifications to the activities covered by this HCP that are identified by the Service as necessary to avoid the likelihood of take and jeopardy to the species or adverse modification of any designated critical habitat. If avoidance is not feasible, or if Granite Rock Company otherwise chooses to, Granite Rock Company will apply for a permit amendment requesting coverage under the Permit for the additional species. In this event, Granite Rock Company shall be responsible for any additional mitigation measures required to satisfy the permit issuance criteria under Section 10(a)(2)(B) of the ESA.

If all or a portion of the Habitat Set-asides, Protected Area, enhancement areas or revegetated slopes are disturbed by severe wind or water erosion or earthquake, Granite Rock Company, in consultation with and with concurrence of the Service, CDFG and the County, will implement the erosion control measures detailed in the November 1997 Revegetation Plan for the Quail Hollow Quarry prepared by Greening Associates, as approved by the Service and CDFG. In addition to erosion control measures, Granite Rock Company shall visit sites during or immediately after storm events or earthquakes that are likely to cause damage. Granite Rock Company shall remedy any erosion problems encountered within fifteen working days so that erosion is not accelerated. Remedial measures for erosion on the site may include spreading or staking rice straw in rills or smaller gullies, installation of straw wattles, planting of willow cuttings, or other measures that will arrest the erosion problem and stabilize the site. In consultation with and with the concurrence of the Service, CDFG, and the County, Granite Rock Company shall implement revegetation actions, and shall monitor revegetated areas, consistent with the Revegetation Plan, as approved by the Service and CDFG.

If all or a portion of the site is disturbed by fire, Granite Rock Company, in consultation with the Service, CDFG and the County, will assess the extent of the damage. Granite Rock Company shall monitor the burned area for a period of two years following the fire to assess the amount of natural regeneration. If natural regeneration of native plant species is not occurring at a rate sufficient to create the desired insect and plant habitat, Granite Rock Company, in consultation with the Service and CDFG, shall implement revegetation actions, and shall monitor revegetated areas, consistent with the Revegetation Plan as approved by the Service and CDFG.

Unforeseen Circumstances. In the case of an unforeseen event, Granite Rock Company shall immediately notify the Service staff who have functioned as the principal contacts for the proposed action. If such unforeseen event could cause undue additional mortality or injury to Plan Species, all activities that could result in such mortality or injury shall cease until all such threats to Plan Species are eliminated or the issue resolved.

In determining whether such an event constitutes an unforeseen circumstance, the Service shall consider, but not be limited to, the following factors: size of the current range of the affected species; percentage of range adversely affected by the HCP; percentage of range conserved by the HCP; ecological significance of that portion of the range affected by the HCP; level of knowledge about the affected species and the degree of specificity of the species' conservation program under the HCP; and whether failure to adopt additional conservation measures would appreciably reduce the likelihood of survival and recovery of the affected species in the wild.

If the Service determines that additional conservation and mitigation measures are necessary to respond to the unforeseen circumstance where the HCP is being properly implemented, the additional measures required of the permittee must be as close as possible to the terms of the original HCP and must be limited to modifications within any conserved habitat area or to adjustments within lands or waters that are already set-aside in the HCP's operating conservation program. Additional conservation and mitigation measures shall not involve the commitment of additional land or financial compensation or restrictions on the use of land or other natural resources otherwise available for development or use under the original terms of the HCP without the consent of Granite Rock Company. Resolution of the situation shall be documented by letters between the Service and Granite Rock Company.

Thus, in the event that unforeseen circumstances adversely affecting the Plan Species occur during the term of the Permit, Granite Rock Company would not be required to provide additional financial mitigation or additional land use restrictions above those measures specified in the HCP, provided that the HCP is being properly implemented. Note that the situations or circumstances described as Changed Circumstances discussed above are not considered unforeseen circumstances and, therefore, may require additional mitigation or restrictions on Project activities, as described in the HCP.

CHAPTER 8

REFERENCES AND LITERATURE CITED

A. References

Pete Parkinson, formerly of Santa Cruz County Planning Department
Ken Hart, Santa Cruz County Planning Department
Jonathan Wittwer, formerly of Santa Cruz County Counsel's Office

Suzanne Schettler, Greening Associates

Jim West, Granite Rock Company

Ray Bransfield, U.S. Fish and Wildlife Service
David Pereksta, U.S. Fish and Wildlife Service
Laura Hill, U.S. Fish and Wildlife Service

Jim Nicholson, Santa Cruz Aggregates, Quail Hollow Quarry

B. Literature Cited

Revised Draft Environmental Impact Report, Santa Cruz Aggregates, Quail Hollow Quarry, April 1993, prepared by Stephanie Strelow

Comprehensive Report on Granite Rock Company's Quail Hollow Quarry, 16 May 1997, prepared by Greening Associates

Final Environmental Impact Report for the Quail Hollow Future Mining Area, December 1997, prepared by Thomas Reid and Associates.

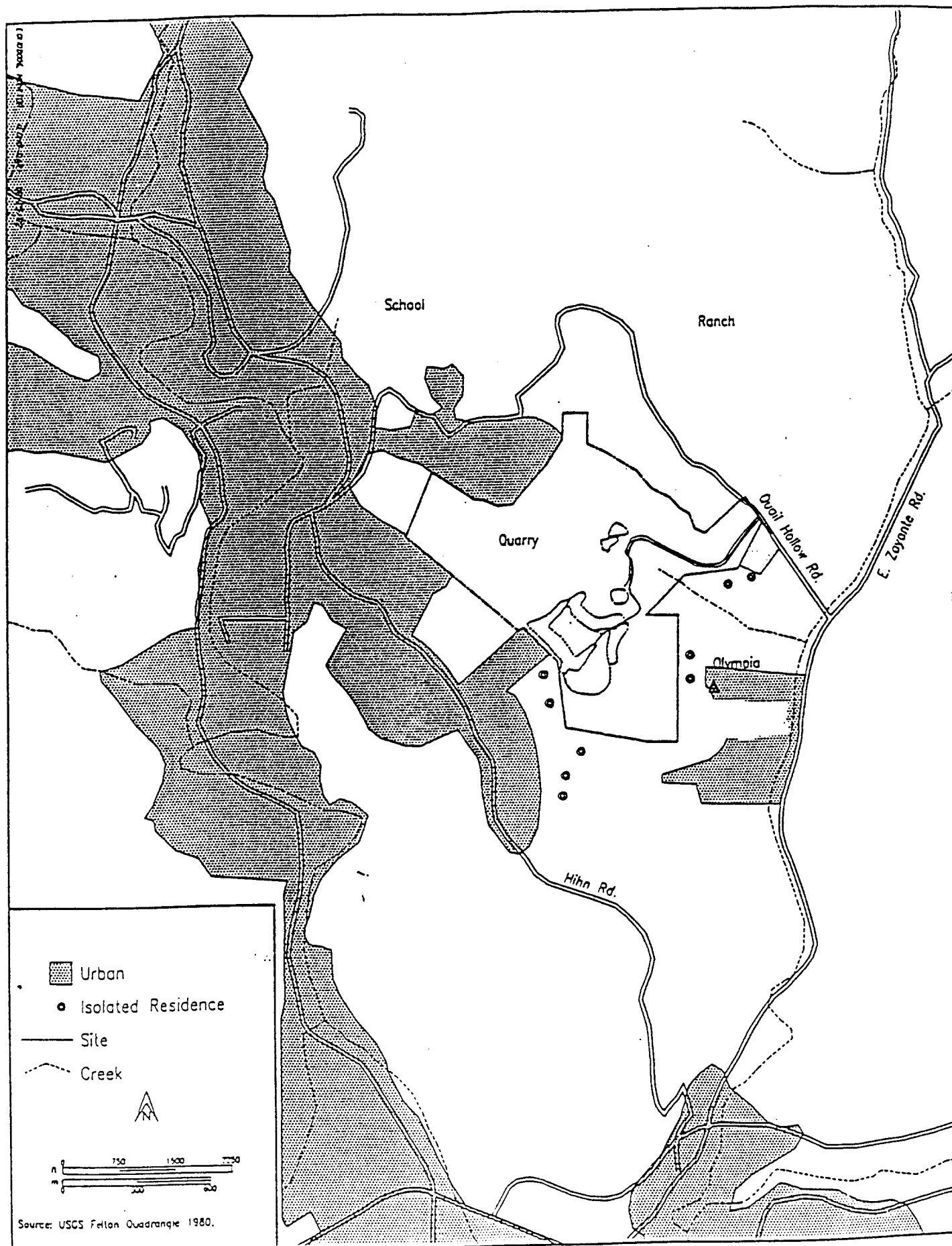
Mining Revegetation Plan, November 1997, prepared by Greening Associates.

Quail Hollow Quarry Stipulation for Entry of Final Judgment, June 1994.

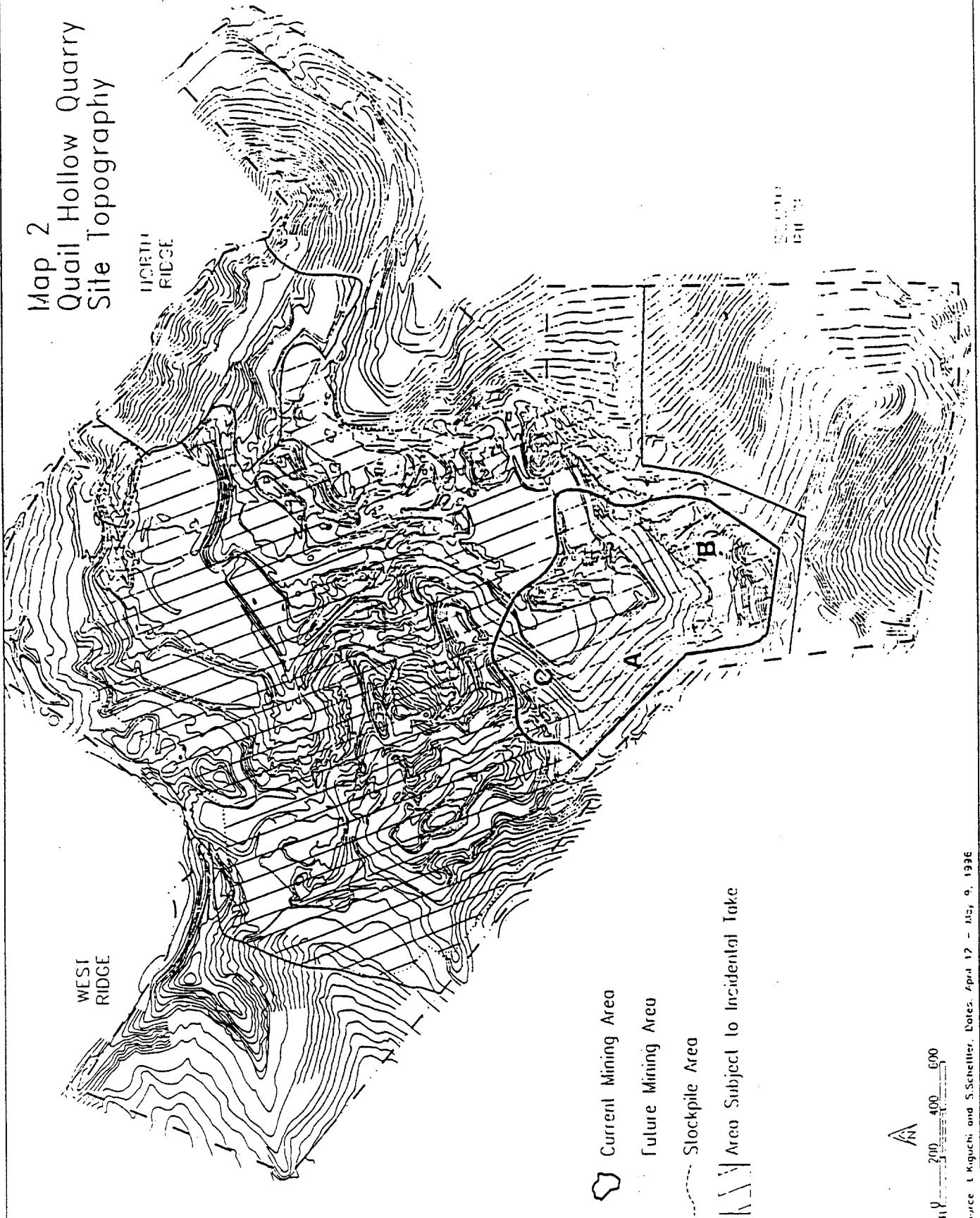
U.S. Department of Interior, Fish and Wildlife Service. Withdrawal of Proposed Rule to List the Santa Cruz Rain Beetle (*Pleocoma conjungens conjungens*) as Endangered. Federal Register, January 24, 1997 (Volume 62, Number 16).

U.S. Department of Interior, Fish and Wildlife Service. Determination of Endangered Status for Two Insects from the Santa Cruz Mountains of California, Mount Hermon June Beetle (*Polyphylla barbata*) and Zayante Band-winged Grasshopper (*Trimerotropis infantilis*). Federal Register, January 24, 1997 (Volume 62, Number 16).

MAP 1: VICINITY LOCATION AND SURROUNDING LAND USES



Map 2 Quail Hollow Quarry Site Topography



Current Mining Area

Future Mining Area

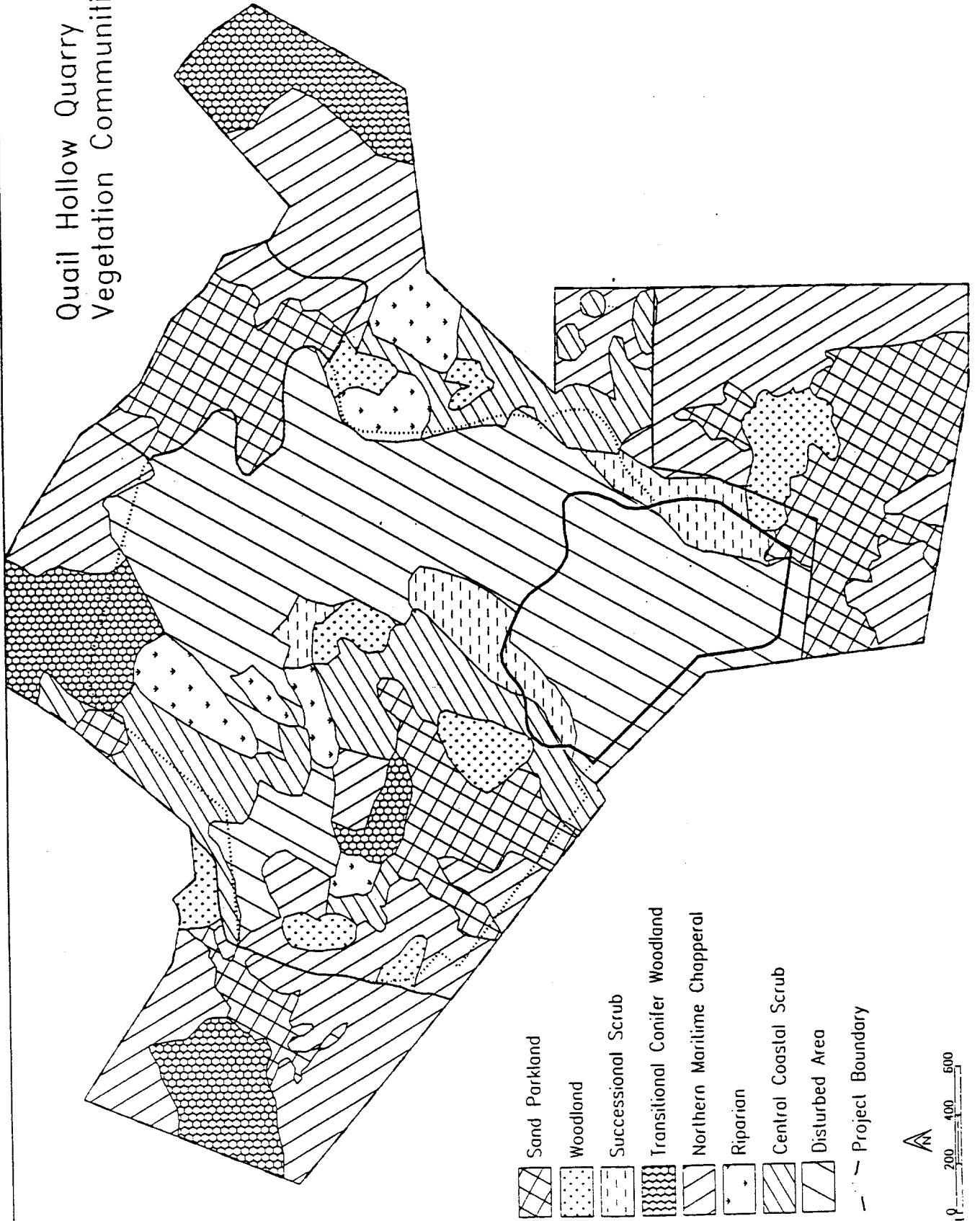
Stockpile Area

Area Subject to Incidental Take

0 200 400 600

Source: L. Kiguchi and S. Schellier, Notes April 12 - 14, 1996

Quail Hollow Quarry Vegetation Communities



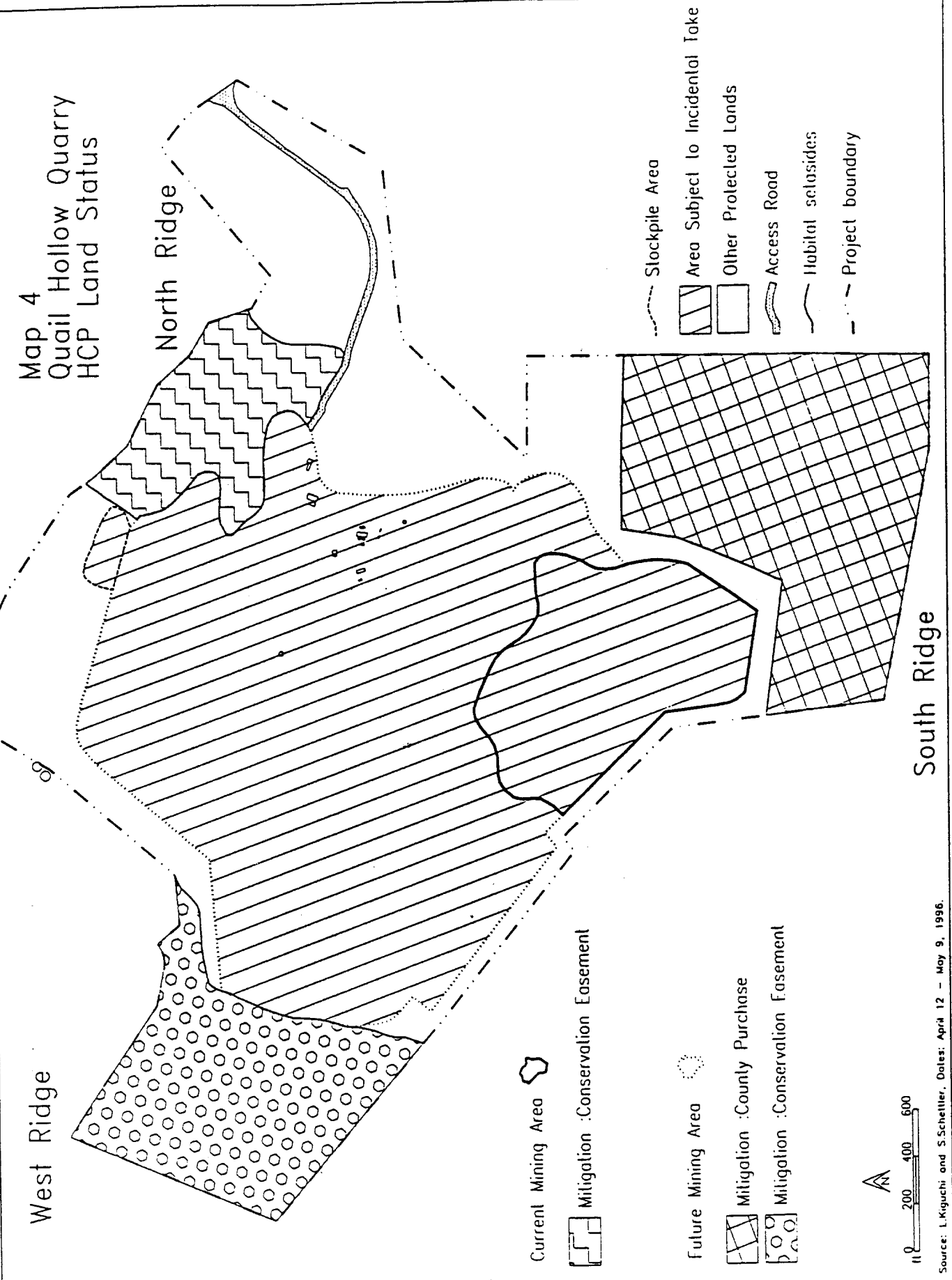
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Map 4
Quail Hollow Quarry
HCP Land Status

West Ridge

North Ridge

South Ridge



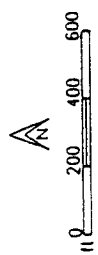
Current Mining Area

Mitigation: Conservation Easement

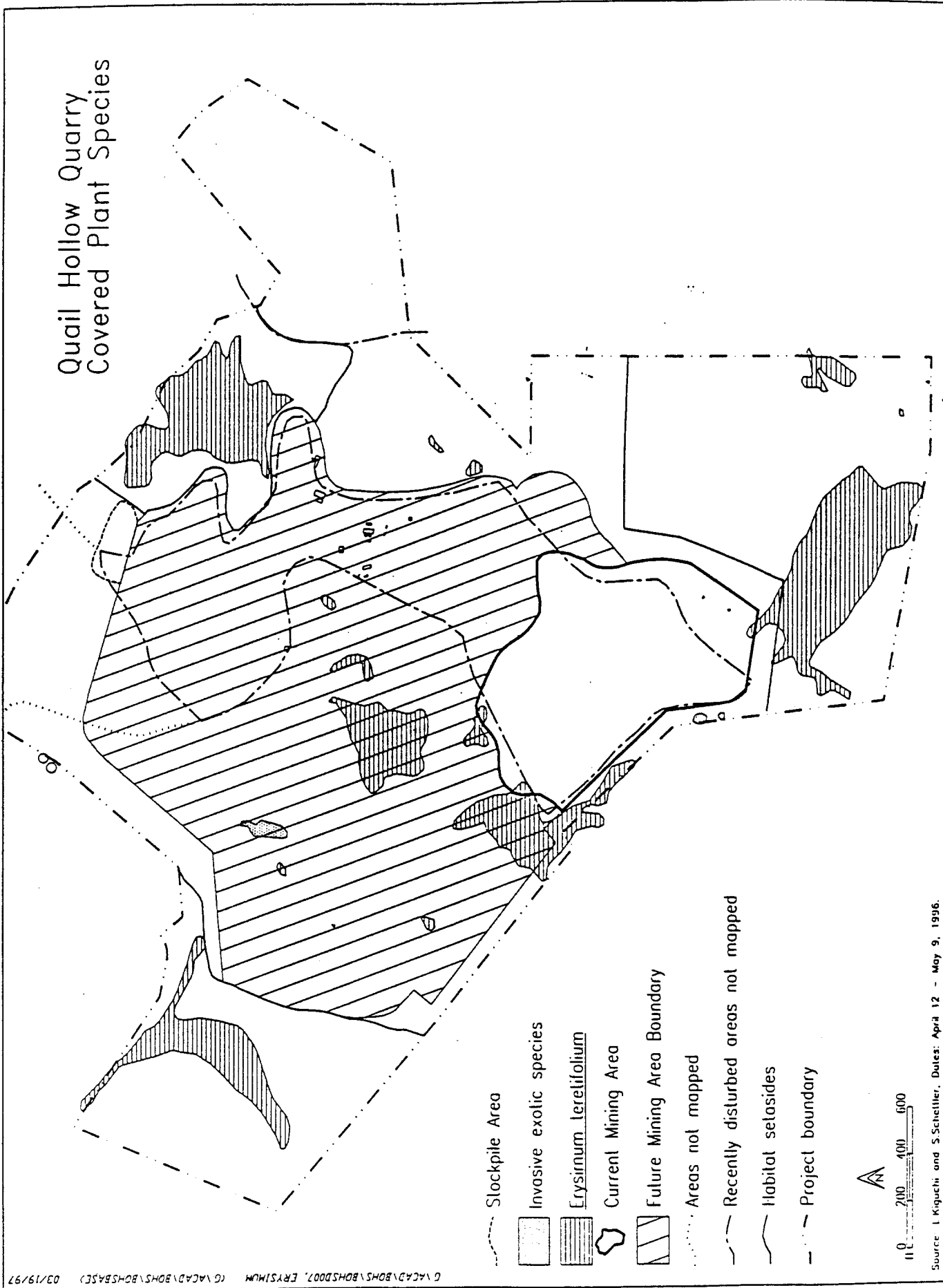
Future Mining Area

Mitigation: County Purchase

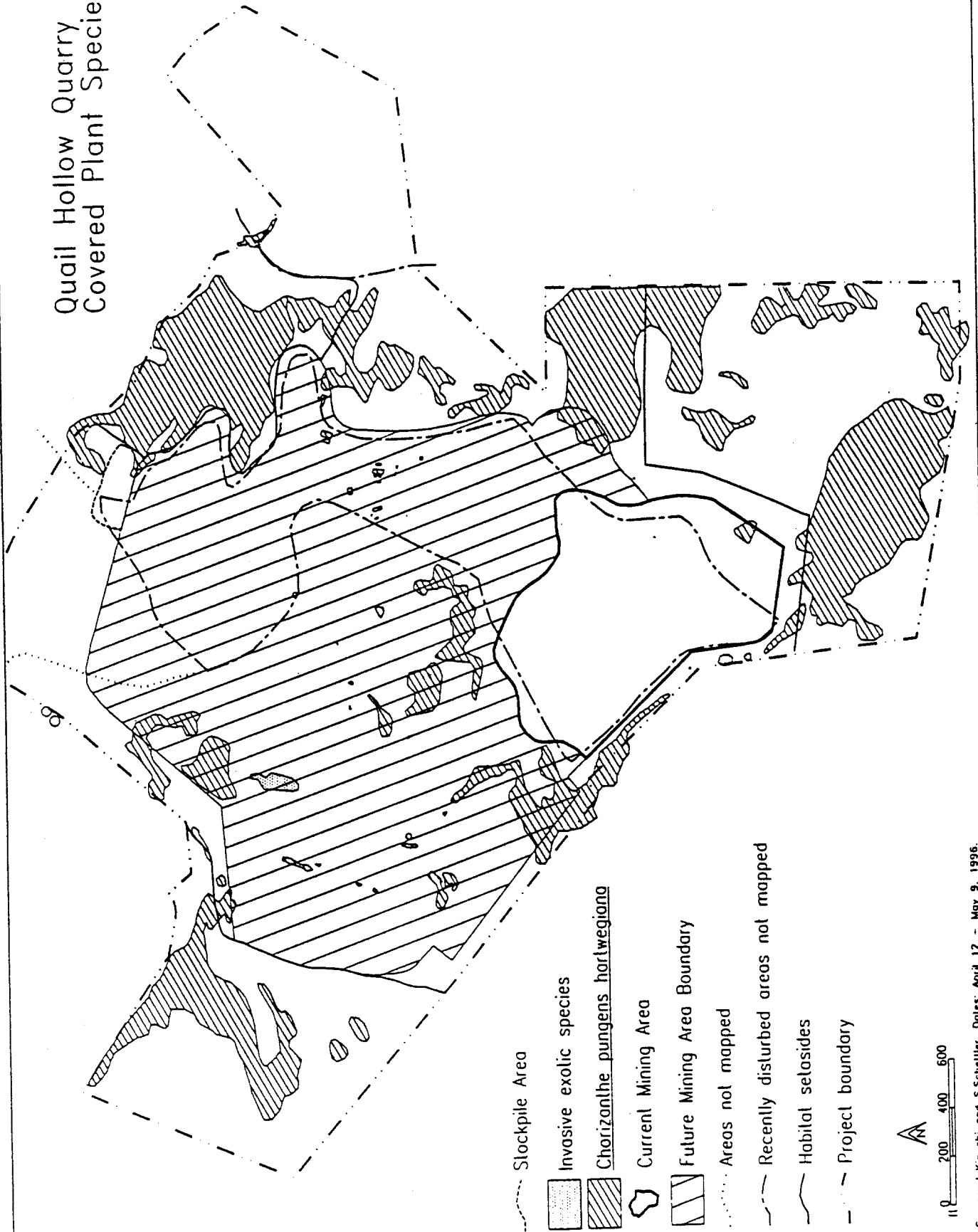
Mitigation: Conservation Easement



Quail Hollow Quarry Covered Plant Species

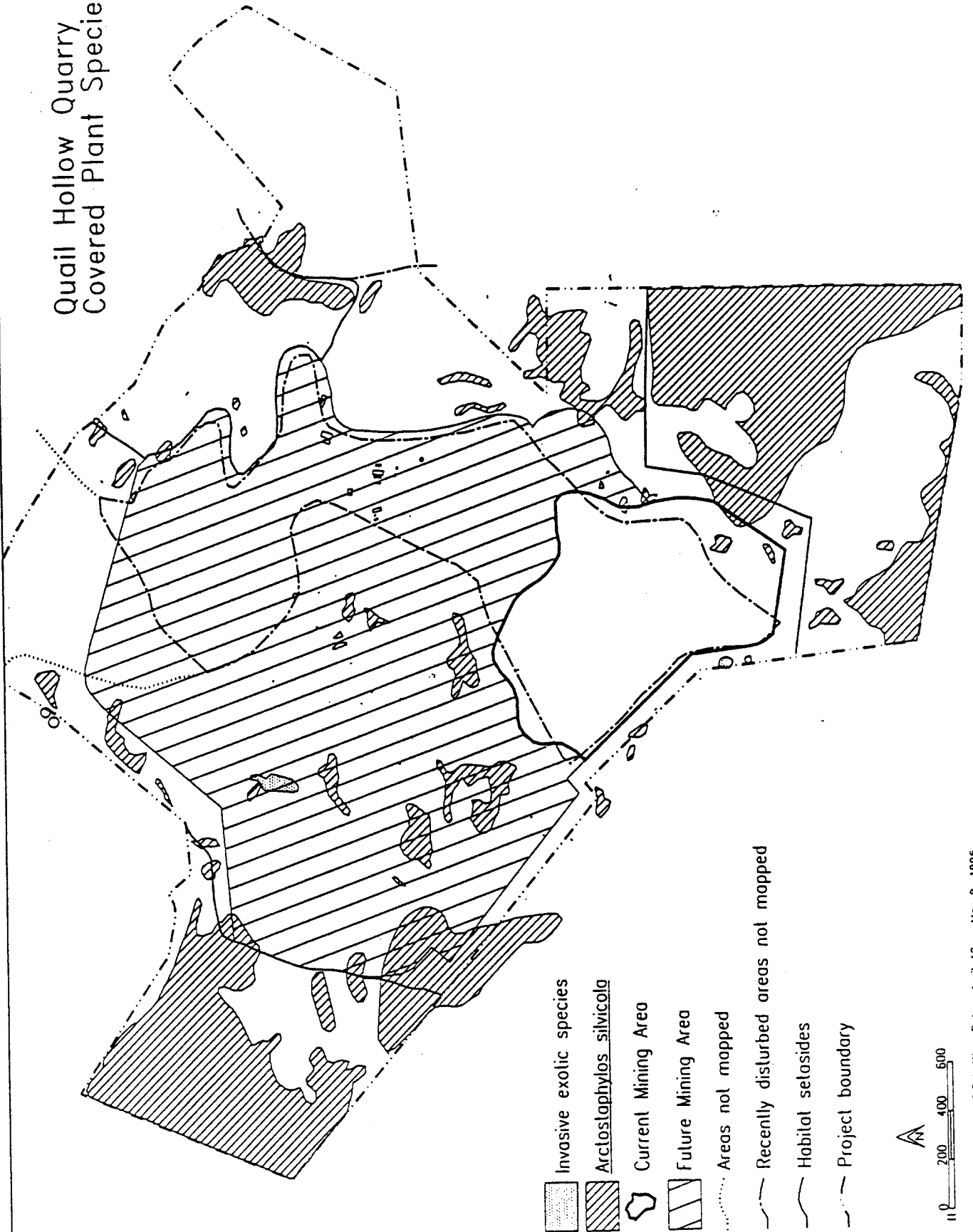


Quail Hollow Quarry Covered Plant Species



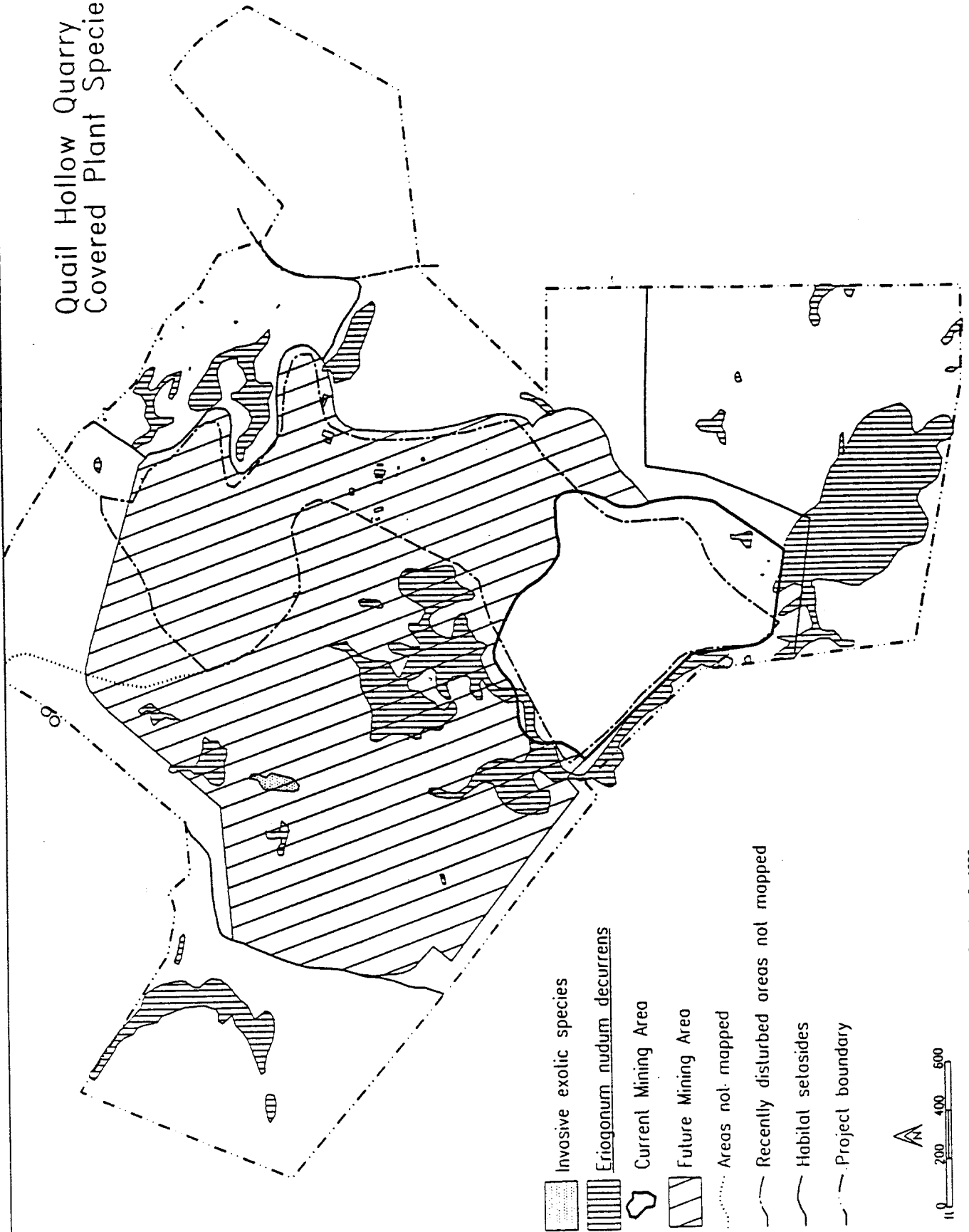
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Quail Hollow Quarry Covered Plant Species



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Quail Hollow Quarry Covered Plant Species



- Invasive exotic species
- Eriogonum nudum decurrens*
- Current Mining Area
- Future Mining Area
- Areas not mapped
- Recently disturbed areas not mapped
- Habitat set-asides
- Project boundary

